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EXPERIMENTS IN INDUSTRIAL ORGANIZATION

BY

EDWARD CADBURY

PART AUTHOR OF

"WOMEN'S WORK AND WAGES," AND "SWEATING"

WITH A PREFACE BY

W. J. ASHLEY, PH.D.

PROFESSOR OF COMMERCE IN THE UNIVERSITY OF BIRMINGHAM

LONGMANS, GREEN, AND CO.

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1912

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THIS BOOK IS DEDICATED
TO
MY FATHER, GEORGE CADBURY
AND TO THE MEMORY OF
MY UNCLE, RICHARD CADBURY,
WHO TOGETHER,
MORE THAN FIFTY YEARS AGO,
CONCEIVED THE IDEALS WHICH HAVE MADE POSSIBLE
THE DEVELOPMENT OF THE EXPERIMENTS DESCRIBED.

PREFACE

THE problem of the organization of the labour force within their works and factories is one which business men are only beginning seriously to consider. The pressure of commercial competition forces them to pay close and constant attention to the market; and they are also compelled to give a careful study to their machinery and other plant. But their labour they are usually content to take very much as it comes; they follow the customary practice in the matters of engaging, controlling, and remunerating their workpeople, and give the whole subject not one quarter of the attention they devote to their customers or their technical processes. And then, from time to time, labour gives trouble, and brings production to a stop, and business men naturally feel hurt. Are they not working hard, they are inclined to ask, at what, after all, is their primary business? Unless they can find customers, their workpeople will lose their employment, even such as it is.

With this frame of mind we cannot but feel a certain sympathy. In businesses managed by a single proprietor, it is often true that the worry of getting trade, on top of the other worry of looking after the plant, is so harassing and engrossing, that the employer has simply no energy to spare for anything else. But as the undertaking increases in scale, it ceases to be possible to keep everything under one man's guidance ; and with specialization of responsibility, if not before, comes an opportunity to take stock of the situation. And what the business world is now realizing is that, whether they desire it or no, the labour side of a big industrial concern calls for a large and continuous expenditure of brain power on the part of somebody. It cannot be left to subordinates : it must be made the main concern of one of the heads of the business ; and even then, there will be large questions of policy which will need to be anxiously and laboriously considered by the whole board.

We have already had enough experience in this matter to be able to say that, in the direction and regulation of labour, there are two lines of policy to be avoided. One is that which devises beneficent arrangements with the intention of lessening the workman's

independence ; with the purpose, for example, so to attach the workman by material ties to the concern that employs him that he will no longer care about a trade union. Such a policy may possibly be sometimes justifiable, and it may possibly sometimes succeed. But, broadly speaking, it is incompatible with the democratic temper of the age, and it is almost certain to break down. The other policy is that which fixes its attention on the efficiency of the workman as a living tool, and disregards every other part of his individuality. Bonus or premium plans which are designed to extract every ounce of effort out of a man ; schemes of scientific division of labour which are intended to reduce work to the repetition of a few simple movements ; these may, indeed, succeed for the time and even bring the workpeople larger earnings ; but they are bound to awaken resentment. For in the long run—awkward as the fact is from a “purely business ” point of view—human beings will insist on being treated as human beings, and not as imperfect machines.

It is for business men to say how far the methods set forth in this book are suitable for imitation in other manufacturing establishments. Businesses differ greatly from one another in the type of labour they employ ; and what may be

feasible or desirable with one type may be impracticable or undesirable with another. But it will be apparent that the measures here described proceed from principles the very opposite to those above mentioned. They respect the industrial independence of the workpeople; they treat them, not as mere workpeople, but as citizens, with their own human hopes and aspirations, and their own part to play in the life of a democratic nation.

Every one who is acquainted at all intimately with the Bournville Works and with those who direct them knows full well that the mainspring of their policy has been a sense of social duty. No political partisanship should blind even the severest of critics to this primary fact: and I feel bound to say this the more emphatically because on certain important political issues of the day I find myself in an opposite camp. But though the ultimate motive has not been business expediency, and much of the action here narrated has evidently been the direct outcome of considerations of a quite different nature, it is the belief of the Firm that, taken as a whole, their policy has distinctly "paid." And this is the aspect of the matter which particularly interests me as Dean of a Faculty of Commerce, concerned with the training of

young business men. It has paid in two ways. For first—I see no reason why we should not be quite frank in the matter—it has been a splendid advertisement. Instead of cynically pooh-poohing it for that reason, I think this is a particularly encouraging fact, and highly creditable to human nature. It shows there is such a thing as a consumers' conscience. The whole essence of the Consumers' League work in America and of the White Lists of the Christian Social Union in this country is to make it "good business" to be known to manufacture under satisfactory working conditions; and with increasing publicity and an increasing fellow-feeling among all classes, I expect that this is going to be the case more and more. And, secondly, it has reduced the expenses of manufacture. An atmosphere of good-will in a shop makes every operation run more smoothly: and the better the work and the mental and physical powers of the operatives are adjusted to one another, the less there is of "lost time," and of a score of those other occasions of expense which do so much to swell "general charges."

One final word. I am myself one of those who think that "individual enterprise" and "capitalism" are too deeply rooted soon to

disappear. But to those who think otherwise the interest of a book like this must still be great. For even if the State (as one school proposes), or the great Union or Syndicate (as another school anticipates) is to take over the conduct of industry, the greater part of the work of manufacture will still be conducted on a large scale, in extensive establishments, with costly machinery, and with considerable bodies of workpeople organized on some plan of division of labour. Most of the internal questions of works management will still remain to be determined somehow; and to that end the experiments described in this book will still be full of valuable suggestion.

W. J. ASHLEY.

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INTRODUCTION

IN the following pages an account is given of the organization of a large factory, which I have ventured to describe as Experiments in Industrial Organization, because certain definite ends which they wished to attain have been in the minds of those responsible for the business, and the varied schemes involved have not come into being in any haphazard or accidental way. The supreme principle has been the belief that business efficiency and the welfare of the employees are but different sides of the same problem. Character is an economic asset; and business efficiency depends not merely on the physical condition of employees, but on their general attitude and feeling towards the employer. The test of any scheme of factory organization is the extent to which it creates and fosters the atmosphere and spirit of co-operation and good-will, without in any sense lessening the loyalty of the worker to his own class and its organizations.

To accomplish this purpose the directors found it necessary to adopt a careful method of selecting their employees, a scheme for educating them, carefully thought-out methods of promotion, just and fair discipline, and opportunities for the development of the organizing ability and initiative of the workers.

The direct value for business efficiency of the various schemes described is indicated by the continuous growth of the business and the number of people employed. Without going further back than 1880, the number of employees was then 303, and at the end of 1911 was 6,182. The efficiency of the employees shows itself in many ways, one of the most striking being the elimination of waste and the reduction of cost in the various departments. Where discipline is good and elicits the good-will and efficiency of the employees, the staff and foremen can give practically all their attention to organizing their departments, instead of their energies being diverted to anticipating and dealing with breaches of discipline. The increased intelligence of employees, obtained by the method of selection and the educational system, facilitates the scientific organization of their work. As pointed out in Chapter III., late time has been successfully dealt with,

and the employees are very regular in their attendance at work. On the other hand, the value of regularity of employment, both in relation to individual character and efficiency and to the social life of the worker, is fully appreciated by the Firm; they have almost eliminated periods of short time, and also largely obviated excessive overtime. This end has been attained, however, only by the most careful organization and system of stock-keeping, which enables the departments to be regularly employed during the whole year. In the cocoa and chocolate trade there are decided seasonal demands; but by counterbalancing these, and by developing markets whose demands come in at times when trade would otherwise be quiet, the required balance has been obtained.

Another indication of this efficiency which will at once commend itself to the modern business man, accustomed as he is to the stress of foreign competition, is the fact that the Firm is competing with increasing success in foreign and colonial markets although their foreign competitors pay lower wages, the wages of the women-workers being in some cases not more than half those paid at Bournville.

The care for the physical efficiency of the worker brings results in the shape of a decreased

sickness rate, and the corollary of this decreased rate is the higher physical fitness of those at work.

The efficiency of the Firm and the employees does not end in the Firm itself; it has a wider civic value in so far as the Firm is a unit of the national industrial organization and the employee plays his part as an intelligent and capable citizen.

The science of industrial organization is yet almost in its infancy, in respect both to the individual factory and to the industry of the country as a whole. Therefore the account given in the following pages is not considered to cover the whole ground. The subject is not dealt with exhaustively, but the book is offered as a contribution to the material necessary for a wider and more complete study.

It must be clearly understood that the organization described is the outcome of the work and initiative of the whole of the directors of the Firm, over a period of more than fifty years. I have to acknowledge the kind assistance and many valuable suggestions of the present directors as to the form in which the material should be presented to the reader, but I am alone responsible for the opinions expressed, and the conclusions drawn from the facts.

I am also greatly indebted to the various officials of the Firm, who have rendered me great assistance in gathering and co-ordinating information respecting the different departments and schemes, and whose assistance and sympathy have made the various experiments in welfare work possible.

E. C.

September, 1912.

EXPERIMENTS IN INDUSTRIAL ORGANIZATION

CHAPTER I

THE SELECTION OF EMPLOYEES

It has been pointed out in the introduction, that the aim of all the schemes of industrial organization and welfare work about to be described, is a combination of business efficiency together with an all-round development of the workers as individuals and citizens. It is taken for granted that before any so-called scheme of welfare work can be of lasting good, a living wage must be paid, and hours of labour and hygienic conditions must not involve the deterioration of the workers. It must be quite evident that clubs and classes, savings funds and libraries, are quite thrown away upon workers who are overworked and underfed.

The attempt to realize these principles attracts large numbers of applicants for employment, both young people and adults, though

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wherever possible the Firm prefers to take on young people, and to train its future adult workers. All applicants for work are obtained through the local Labour Exchange, and notices to this effect are posted at the entrances to the works. The Labour Exchange officials are fully aware of the standards required by the firm, and therefore the Exchange itself eliminates the definitely unsuitable applicants.

Six hundred to seven hundred girls and boys are taken on each year. The methods of selecting them are as follows: The boys and girls assemble on different days at a fixed time. On the faces of the younger applicants there is a look of excitement and eagerness. For the first time they are stepping into the industrial arena, and the vision of freedom and wage-earning brings a sense of increased importance. They do not appreciate fully the great change that is taking place in their lives, nor do they realize the added responsibility that "growing-up" brings with it. With all the optimism of youth they are looking forward to a good time. The older girls, who have had some experience of the stress and uncertainty of the worker's lot, are also eager enough, but their look of eagerness is mingled with anxiety. The latter are applying because they "expect better conditions

and wages," because "hours are shorter," because "work in previous employment is short," and so on.

There are three tests: (1) educational acquirements; (2) general tone and character; (3) physical efficiency. The younger girls are first grouped according to the standard they were in on leaving school, and preference is given to the children in the higher standards. In the early days at least half the girls taken on would be in the fifth standard, but now no girl is taken on who has not attained to the sixth standard. Within the last few years the number taken on from the seventh standard has largely increased, and on a recent occasion when 50 girls were taken on, all were in the seventh standard. This classification brings out the fact, that generally the girls in the lower standards are poorer in physique and in other ways. The attainment of the higher educational standard generally indicates that school attendance has been regular, and that home conditions are good. In this connection the following figures may be of interest. A record was recently taken of the wages of sixth and seventh standard girls, both doing the same work under the same conditions. The results were:—

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	<i>At end of three months.</i>	<i>At end of six months.</i>
Sixth standard	1.24 pence per hour.	1.58 pence per hour.
Seventh ,, 1.33 ,, ,,	2.07 ,, ,,	

Preference is given to applicants just leaving school, as they have not yet lost their habit of discipline and obedience, and they retain more of what they have learnt there. A year or two makes a great difference in this respect.

It is also worth while to note that this policy has a good effect upon the educational standard in the district, and there is now little difficulty in keeping the higher classes full in the elementary schools.

Each applicant must bring a copy of birth certificate for inspection, and after the applicants are classified according to age, all are asked to fill up a form of questions, giving such particulars as name, address, age, whether the applicant is living at home with his or her parents, the school last attended and the standard passed. For older applicants other questions deal with the nature and place of last employment, wages received, length of service in that situation, and whether the applicant is at present in a situation. Questions bearing on the health and family history of applicant have also to be answered.

The particulars thus furnished often disclose

the fact that the applicant has come into the neighbourhood specially to be taken on at the Works, and is living in lodgings. All new girls are therefore visited to find if they are actually living at the addresses given, in order that the fatigue of coming long distances may be prevented. Before this precaution was adopted, girls came from long distances, and it was noticed that they often broke down in health owing to the exertion of travelling to and from work, this, of course, being specially severe in bad weather. Up to recent times girls who lived within a fixed radius of two miles only were taken on, but now new employees have to be taken from further afield, as the Firm has absorbed from the immediate neighbourhood most of the young people who comply with their requirements. The present plan with regard to girls coming from a distance, is to take those only who are in touch with tramway or railway communications, and if the fares for the journey to and from the Works exceed a shilling per week, the Firm makes up the difference for those aged sixteen or under.

In order to confirm the reply given on the applicant's form, a reply postcard is sent to the teacher at the school where the boy or girl was

educated, asking for information as to the standard in which the child was working on leaving school.

The Works doctors examine the satisfactory applicants, filling in on the form the height and weight, the condition of heart, lungs, sight, hearing, teeth, and general appearance. It is also stated whether the applicant is a fit person to receive employment and what form of work he or she is most suited for. After the forms have been filled up, the applicants are interviewed by one of the directors of the Firm, who then decides the class of work, special note being taken of the tone, character, cleanliness, and general bearing. When young persons are selected for employment the condition of their hands is a very important factor.

Boys and girls of fourteen years of age and upwards are engaged for the Offices if they have worked in the "ex-seventh standard" in the elementary schools, or have attended secondary schools. The examination for boys and girls of fourteen, fifteen, and sixteen years of age, who desire positions in the Offices, consists of reading aloud from a daily newspaper or magazine, writing, spelling, questions in geography, such, *e.g.* as to state the county in which certain towns are situated, and to name the leading

towns in a given county ; problems in arithmetic in the compound rules, decimals, proportion ; and a specimen bill of quantities and prices is given them to extend and to deduct a discount from the total. A fairly high standard of marks is expected.

It is quite remarkable how soon many of the boys and girls seem to forget the knowledge they have learnt at school. They are particularly weak in geography. Among a dozen girls who were asked the question :—"In what part of the world are the following cities : Aberdeen, Belfast, Calcutta and Vienna ?" only one could answer the whole question, and some of the girls could not answer it at all.

In addition to the above, the senior applicants for Office positions are required to know shorthand and to make out a ledger statement of debits and credits, leaving a stated balance ; and for the Store-keeping and Check-weighing departments, small and clear handwriting is required, and arithmetical problems in weights and measures suitable to the work to be undertaken are set to the applicants. These positions, as a rule, are given to employees already in the Works, and are therefore in the nature of promotions.

A preliminary form is sent to all male

applicants, informing them of the scale of wages paid, the privileges extended to employees in the way of clubs, medical attendance, dental treatment, pension fund, etc., and the requirement of compulsory attendance at evening schools and physical training classes, and generally as to the conditions of employment.

After the young applicant has been selected to fill a vacancy in the Works, a printed form is sent to the parents or guardians, asking for their co-operation in the matter of attendance at Evening Continuation Schools, and pointing out the benefit which the child would derive from such attendance, and that the children who are willing to attend continuation schools will have the better chance of continued employment and of promotion in the Works. Attention is also called to the necessity for care of the teeth, and the physical benefits derived from swimming and gymnastics, and stating that the Works dentists regularly inspect teeth and attend to them up to the age of 21, and that all juniors up to the age of 18 are required to attend the physical culture classes which are provided, and for which costumes are lent to juniors free of charge. This form informs the parents that a birth certificate is required, and that a school certificate is necessary, in

THE SELECTION OF EMPLOYEES 9

accordance with the regulations of the Factory and Workshop Act. It also states that at the end of a month, if the forewoman reports that the girl is a satisfactory worker, material is supplied, free of charge, to make two uniform holland frocks to be worn while at work. It is also stated on this form that time is allowed weekly for a hot bath, during work hours; and a pamphlet is enclosed in respect to "The Benefit Scheme for Sick Employees."¹

A copy of the Works rules is supplied to each selected applicant, and the parents or guardians are asked to make themselves conversant with them, as their child's progress depends largely on the help and co-operation of those at home.

The parents or guardians are required to sign an Authorization Note, agreeing (1) that the boy or girl shall attend the evening classes until he or she is 18 years of age, or has completed the whole of the course arranged; (2) that he or she shall receive, free of charge, any attention the dentists may consider necessary, up to the age of 21; and (3) that he or she shall receive instruction in gymnastics and swimming until the end of the term in which the eighteenth

¹ In view of the National Insurance Act this will be discontinued after January 15th, 1913.

birthday is reached. This Authorization Note, when signed, is then acknowledged by the firm in a circular letter,¹ thanking the parent or guardian for the co-operation given, and stating the course of study most suitable, also giving a short explanation of the educational policy with regard to boys and girls employed at the Works.

All new employees are required to sign an agreement that they will conform to the rules and regulations.

¹ See p. 11.

CHAPTER II

EDUCATION OF EMPLOYEES

THE parent or guardian of each successful applicant for work under 18 years of age, receives the following letter, which explains itself :—

“DEAR SIR or MADAM,

“We beg to thank you for your co-operation in connection with the education of, and would suggest that he (or she) should enrol on evening next,, at 6.45, at School; the course most suitable for study being that under the head of

“We think a short explanation of our policy, with regard to boys and girls in our employ, may be of interest to their parents, as we know they will wish to co-operate with us in giving the best education to their children.

“We think that all boys and girls in this country should have every chance of continuing their education up to the age of 16 in the ordinary

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things useful in everyday life, and thus lay a good foundation for their future at the age when they are best able to take advantage of it. After the age of 16 a variety of courses should be open to them, of which they could take their choice, according to whether they intend to take up a commercial, technical, or general career.

“It is essential that the fullest use should be made of the best years of life, and in order to accomplish this we have laid down a continuous course of instruction for our employees, so that one year’s work leads on to the next, and all lead up to the course that each student chooses for his final career. In this way also it is possible for the teachers to obtain the best results, as it is impossible to teach all ages together, or to try to get new comers to keep pace with those who have already studied a subject. This has been most apparent in the Technical Schools, where a boy will enter who has not yet mastered, *e.g.* the necessary arithmetic, and the time of the whole class is wasted while the teacher has to teach him how to do some simple sum.

“From the above you will see that a properly graded course, besides ensuring that all shall have a thorough grounding in things necessary to life, also aims at making the best of the

boys' or girls' time, and means greatly increased efficiency all round. It is only by treating the subject scientifically, as is done in Germany and other countries, that we can hope to keep our supremacy in the world, and take our lead among the nations.

"In order to make it easy for those who live at a distance, we arrange to provide a good tea at 1*d.* per night, and are having the classes fixed at the early hour of 6.45, closing at 8.45. The dining-room and lodge will be kept open until 6.30.

"We are, yours truly,
"CADBURY BROTHERS, LIMITED."

The following account of the educational schemes will show how far, and by what methods, this ideal is realized.

Classes of various kinds have been held at the Works for upwards of ten years. The educational work began with a few evening classes, and assistance in paying the fees at technical classes, followed by physical training classes for girls and boys. In the summer of 1906 the whole of the work was centralized and co-ordinated, and the Bournville Works Education Committee was formed to assist in carrying out the educational policy. The development of this policy since

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1906 has been in the hands of this Committee, which comprises two directors of the Firm, the two medical officers to the Works (one of whom is a lady) and seven others who are the heads of important departments, and of whom three are ladies. The Committee have the assistance of an official devoting his whole time to educational organization, together with all the usual resources of an education office. Amongst the members of the Committee are included a member of the Birmingham Education Committee and others serving on local After-Care and Evening Schools Sub-Committees.

The Works *Education* Committee controls the general policy, while the Works *School* Committee manages the classes held at the factory. The volume and the variety of these classes are sufficient to warrant the use of the term "Works School," since they represent an amount of educational effort quite equal to that of a fair-sized technical school. Each Committee has a Men's Sub-Committee and a Girls' Sub-Committee. All these bodies meet monthly. The Works School Committee act as managers, under the Board of Education, for the physical training and other classes held at the Works. These classes are inspected by the Board Inspectors and are grant-earning. In this way it

is ensured that no narrow ideas shall dominate the educational scheme.

The Committee, when necessary, makes suggestions to local educational authorities in respect to educational facilities required in the elementary day schools, as well as in the evening continuation and technical schools. Fortunately, the local education authorities, as well as the Board of Education, have been generous and sympathetic, and the supply of educational facilities has equalled the demand. This is due to the fact that the local education authority is enlightened and progressive, that the demands from Bournville have always been most carefully thought out before being suggested, and that the scheme in its first stages was tentative and experimental and has evolved gradually. The scheme is broad in conception, and so is of general applicability, and has now been adopted in all the Evening Schools in the district.

The various forms of educational work may be brought under five heads:—(1) Compulsory Evening Classes; (2) Physical Training Classes; (3) Miscellaneous Classes; (4) Apprenticeship Scheme; (5) Trade Classes.

Compulsory Evening Classes.—It has already been pointed out, that boys and girls who apply for employment are admitted only if

they have worked at least in the sixth standard in the elementary school, or have attended a secondary school. It is not, however, satisfactory for education to stop at the age of fourteen. There is a great national waste in allowing children to leave school at the age of twelve to fourteen, without ensuring in some way that their education shall be continued. It is surprising how quickly their knowledge, elementary as it is, is forgotten, and it is now recognized that it is after the age of fourteen that the average child develops the reflective capacity necessary to make the best use of education. And apart from the value of education for its own sake, in that it develops the capacity for a life varied in interests and tolerant in outlook, there is an economic value; education develops initiative, adaptation, self-control and general knowledge of mechanical and scientific principles, which, quite apart from specialized training, are so necessary in modern industrial life. Thus it is the duty, as well as the interest, of the employer to foster the love of education amongst his employees. And under present conditions the employer can exercise a more direct and effective pressure than can either the parent or the education authority.

Influenced by these considerations, the Firm,

after consultation with, and the cordial approval of, the heads of their departments, decided that all their junior employees must attend evening continuation schools, and that the work done should be systematic, and adapted to the capacity and employment of the boys and girls. At first the age up to which attendance was compulsory was fixed at sixteen, but now all under eighteen must continue their education, and to this end a scheme, covering a four years' course, has been drawn out. The educational needs of the younger people are not allowed to be interfered with by any overtime work, and such interference is non-existent. The fees are refunded to all students making over 85 per cent. attendances.

Boys.—The courses under the scheme as it applies to boys are as follows:—

BOYS' COMMERCIAL COURSE.

FIRST YEAR.

1. English Language and Literature.
2. Elementary Mathematics.
3. History and Geography.
4. French, if in the opinion of the Headmaster the student is in a position to gain adequate benefit by attendance for this subject.

SECOND YEAR.

Same subjects as first year, but more advanced.

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THIRD YEAR.

1. English, including Commercial Correspondence.
2. Commercial Arithmetic.
3. Modern Book-keeping or Short-hand.
4. A Modern Foreign Language (French, German, Spanish or Portuguese).

FOURTH YEAR.

Same subjects as for third year students, but more advanced.

BOYS' INDUSTRIAL OR GENERAL COURSE.

FIRST YEAR.

1. English Language and Literature.
2. Elementary Mathematics.
3. Art.
4. History and Geography.

SECOND YEAR.

1. English Literature and History.
2. Elementary Mathematics.
3. Art.
4. Elementary Science.

THIRD YEAR.

- Apprentices to take specialized Courses.
- General Workers to take the following :—
1. English.
 2. Practical Mathematics.
 3. Elementary Science, Mechanics and Physics.

FOURTH YEAR.

- Apprentices to take specialized Courses.
- General Workers to choose their own subjects, which have to be submitted to the Works Education Committee on or before Sept. 8th.

During the first two years of employment all boys from the elementary schools take the first and second years' stages of the course at the local continuation schools, the boys from the Works taking the industrial course, those from the Office, the commercial course. At the end of two years the progress made is tested by an examination, and those who do not reach a certain standard must take a further year at

the continuation school. The successful students are then passed on to the technical schools for the third and fourth years' stages. This group is divided into two classes, the most capable being selected, after six months' probation, to take advantage of the apprenticeship scheme. In this way those only who are qualified to take full advantage of the highest grade work attend the more advanced studies at the technical classes, and thus the teachers' time is not wasted with students whose elementary knowledge is insufficient.

It will be noted that this scheme is based on the course system, and that for the first two years little latitude in choice of subjects is allowed, the aim during this period being to give the students a good general basis for future more advanced work. In all the grades, both for boys and girls, special importance is attached to the teaching of various branches of English and Arithmetic. In the third and fourth years more latitude in subjects is allowed in the case of a student who is not learning a trade, those coming under the apprenticeship scheme, of course, following out a line of study specially adapted to their particular trade. In the case of the unskilled workman there is a great need for widening and deepening his outlook on life,

since very often his work is monotonous and depressing, the sub-division of processes being carried to such an extent that there is a narrowing of interest, while automatic machinery almost eliminates any demand for initiative and adaptation. The unskilled youth, therefore, is allowed a wider choice of subjects, especially in the fourth year, when he can take such subjects as music, art, handicrafts, science, literature, political economy, and social philosophy. Thus he finds in his leisure time that opportunity for developing his mind and imagination which his trade calling denies him.

Girls.—When a girl first comes to the Works it is frequently found that she lacks application, and she believes that now she has left the day school her education is finished. She is glad to leave the school behind her. She has little, if any, conception of education being a preparation for work, home, and play, in after life.

Girls are first employed on mechanical work, which demands concentration to attain the standard required, and yet does not entail much physical or mental effort. The break for physical training also lessens the monotony, and occasionally, at a sign from the forewoman, the girls in some departments sing together, still

continuing work ; the idea being to exercise the lungs and brighten the working hours.

At the end of the working day, tea, for which a charge of one penny is made, is provided for those who do not wish to go home before school, and they seem to appreciate the opportunity of meeting and chatting together. The leisurely enjoyable way they pass this hour shows that waiting is the opposite of being any hardship. Sometimes large groups of girls go into the baths to see the older ones being taught swimming, or the more proficient disporting themselves in the water. Then comes school, and in the class-rooms the faces of the girls show an alert interest and attention. At the conclusion of the lessons, groups gather round the teacher, asking questions. The fact that a considerable number of the girls stay at school voluntarily after their compulsory course is finished, shows that the course achieves its object, which is to make the girls love learning • for its own sake, and it is hoped that by guidance, and the further provision of suitable classes by the local Education Authority, or educational societies, the proportion of girls attending evening courses of study may be still further increased.

A course system is followed in the same way as the boys, the syllabus being as under :—

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GIRLS' DOMESTIC OR GENERAL COURSE.

FIRST YEAR.

1. English Language and Literature.
2. Arithmetic.
3. Art.
4. Needlework.

SECOND YEAR.

1. English Language and Literature.
2. Arithmetic.
3. Home Dressmaking.
4. Physiology.

THIRD YEAR.

1. English Literature.
2. Cookery and Laundry-Work.
3. Laws of Health.

FOURTH YEAR.

1. English Literature.
2. Housewifery, including Cookery, Mending of Household Linen, etc.
3. Sick Nursing and care of Infants.

From the foregoing tables, it will be seen that the course of study recommended to a girl entering the Works at the age of fourteen, assumes a more and more domestic character as the girl approaches the age of eighteen. In the first session she takes needlework; in the second session she takes simple home dressmaking, and acquires some knowledge of the structure of her own body; in the third year she applies this knowledge to the care of the body, and at the same time studies cookery and laundry work; in her final year the same knowledge is applied to the care of the body in sickness, and to the management of infants, while the skill acquired in cookery, laundry-work and needlework, finds an outlet in a comprehensive syllabus of practical housewifery.

Concurrently with this there is instruction in drawing for one session, in arithmetic (especially household accounts) for two sessions, and in English for four sessions. Physical training is taken at the Works throughout the four years.

These courses of study may be open to criticism, and in the future they may be modified. The present combination of subjects is the outcome of much thought and consideration, not merely on the part of the Works Education Committee, helped by the officials of the Board of Education, but also on the part of the Local Higher Education Committee, who first worked it out in detail, and adopted it in the various evening schools of the old Urban District of King's Norton and Northfield, now merged into Greater Birmingham.

The Housewifery Classes are held in ordinary cottages, furnished and equipped in much the same way as are the girls' own homes. During the year 1911 morning classes in housewifery were held for the first time by the Local Higher Education Committee, and summer classes were also held in this subject.

The girls in the class on home nursing and the care of infants are taught by qualified and experienced trained nurses, the subject

being considered especially important. It is now generally admitted that a great deal of infant mortality arises from ignorance as to the care and feeding of infants on the part of young mothers, and not less distressing is the ill-health and unnecessary suffering of many of the children who survive. The girls take a keen interest in this class.

In July, 1911, the four years' Domestic Course for the first set of girls, numbering 103, was successfully completed, and the incident was marked by these girls being invited to tea at the house of one of the directors, when brief addresses were given by the head-mistress of the Birmingham University (Women's) Day Training College, and others, to urge them to continue their studies. A letter from the Firm was also sent to each of the girls who had completed the four years' course of study, pointing out that the work done did not of itself furnish a complete education, but served only as a general introduction to several branches of knowledge, and encouraging the girls to continue the study of those subjects in which they had the greatest interest. A list of suitable courses of study was enclosed with this letter, recommending the subjects to be taken up by girls in the Office, and by those doing general

work. The following subjects, in addition to those in the four years' course, were suggested for selection: History, Citizenship, Ambulance, French, German, Music, Millinery, Embroidery and Art, or any class held at a public educational institution in the city. Monetary assistance was also offered to girls up to the age of nineteen, class fees up to 7s. 6d. to be returned to all students under that age, who complied with the conditions as to attendance, etc.

The following comparative table shows the number of employees who have attended evening classes during the last six years:—

Year.	Compulsory.	Voluntary. ¹	Total.	Fees returned.			Rewards.		
				£	s.	d.	£	s.	d.
1906-7	430	156	586	53	9	6	172	12	6
1907-8	542	306	848	63	3	6	198	13	10
1908-9	543	280	823	56	10	0	180	17	4
1909-10	856	200	1056	73	5	7	237	10	0
1910-11	1500 ²	200	1700 ²	125	1	6	380	11	7
1911-12	1737 ²	213	1950 ²	149	1	6	363	18	2

The age for compulsory attendance was raised at the beginning of the 1909-10 session from 16 to 18, so that a large number of older students at that date began to attend

¹ The figures for voluntary students are never complete, as some students do not care to give in their names as attending classes.

² These figures include a considerable number of boys and girls who joined after Christmas, and did not participate in the reward scheme.

compulsorily, and this accounts for the apparent decrease in the number of voluntary students.

Nearly all the students have their fees refunded for making the necessary 85 per cent. attendances at the evening classes, and in addition, there is a reward scheme based on the reports received from foreman or forewoman, evening school, and physical training classes; the awards varying in value from 7s. to £2 10s.

Physical Training.—It is now recognized everywhere that the development of character and intelligence requires a concurrent development of a healthy physique. And education on careful and systematic lines is as necessary for the latter as the former. Even in the case of boys and girls who live in good surroundings, and obtain proper nourishment, training is essential if a full and well-balanced physical development is to be obtained. The moral and intellectual qualities resulting from physical training are also valuable in themselves, apart from the fact that a sound and harmonious physical development is a necessary basis to education.

The conditions of industrial life even in the best equipped factories emphasize the necessity for physical training in the case of the boy and girl just starting work. The occupation is

sedentary, and their movements are restricted and confined by tasks that are often very automatic. During the period of growth, body, mind and character are plastic, and such continued monotonous and restricted movements retard development, unless counteracted by frequent opportunities for training in movements that are varied, and that call for conscious effort and will.

Physical education, if carried out on proper lines, develops the physique; it has a mental and moral effect in bringing out the qualities of alertness, concentration and self-control; and if the teacher understands his business, it has, in addition, a recreative effect, for pupils enjoy the drill and organized games.

Keeping these facts in mind, the directors decided that up to the age of 18 all boys and girls should take compulsory physical training, no deduction from time-wages being made when such classes are taken during working hours.¹

Two half-hours' compulsory instruction per week for girls are devoted to Swedish drill, swimming, and life-saving. Marks are given, and examinations held at the end of each term. This department is conducted on a thoroughly

¹ The time taken up by this training has not been found to lessen the piecework earnings to any appreciable extent.

scientific basis, and is under the control of five gymnastic teachers fully qualified in the Swedish system of physical education. The compulsory training which the younger girls receive may afterwards be continued by voluntary attendance at evening classes.

It is not proposed to deal in any detail with the theory and practice of physical training. It is sufficient to say that the results show that the drill has an educative and recreative effect. The object is to cultivate among the girls healthy minds and sound bodies. The head, trunk, arms, and legs are all exercised in turn, and together; the girl has to perform movements at the word of command, and then to remain still, and so she learns self-control. Other exercises demand courage; while jumping, and exercises which have a rapid action, bringing into play the whole body, have an exhilarating effect on the mind and induce a feeling of self-confidence. In class work and in organized games, the girl has to learn to work with others, to keep cool, and to decide quickly.

Remedial Classes have been established for girls whose development is below normal. In these an entirely different syllabus of instruction is followed, the numbers of students taken simultaneously are much smaller, and

special apparatus is used. The progress towards normal development made by the girls in these classes is closely watched by the Works doctors. Every girl is instructed in the fundamental laws of hygiene, and as to the necessity of wearing suitable clothing.

Swimming.—The girls have the use of a covered swimming bath 80 ft. by 45 ft., varying from 3 ft. 9 ins. to 6 ft. in depth. The water is purified by the aëration process, being passed continuously through air at a high point outside the building, where it is exposed to sun and wind, and conveyed back to the bath through a filter bed. The water of the bath is always clear enough to see a threepenny piece at the bottom of the deep end, and owing to the perpetual circulation there is no day when the water is less clean than another. The whole of the water circulates through the purifier every eight hours. The temperature is kept at 74° in summer and 76° in winter, as advised by the medical staff.

In addition to the swimming bath there are slipper baths and spray baths. All students use the foot-spray before entering the baths. There are a large number of dressing boxes, and the building is fitted with such conveniences as hair-drying appliances, etc. In the basement is a large and fully-equipped laundry.

The instruction in swimming for the junior girls includes practice in land drill, that is, arm and leg strokes, and breathing exercises, the latter being used as an introduction to resuscitation, which is taught in the more advanced classes. The actual instruction given is:—

Breast stroke,	Jumping in,
Back stroke,	Diving,
Side stroke,	Plunging.
Floating,	

The land drill is taken only until the student is proficient in it. The new students spend part of the time watching the instruction given to others, and in studying life-saving charts, and part of the time in the water. All students who are sufficiently advanced to spend the whole of the time in the water do so.

Swimming is a fine exercise and invigorating sport. It exercises all the muscles of the body and necessitates proper breathing, and in the normal, healthy girl produces, as an after effect, a decided physical and mental exhilaration. The knowledge of life-saving methods gives a feeling of confidence, and the emulation amongst the members of the class appeals to the more nervous and timid girls, and provides an incentive to the necessary effort of will called for to perform some new and difficult feat.

In five years upwards of two thousand girls have learnt to swim, and many continue their training in the voluntary classes, and have received the Royal Life-Saving Society's certificate and medallion, three girls having taken the Diploma, which is the highest award given by the Society.

Compulsory Physical Training for Boys.

—The system taught in the classes for boys follows both the German and Swedish methods, the teachers being fully qualified in both. All boys up to sixteen years of age are required to take a two years' course in the gymnasium for two half-hours per week, in the Firm's time, no time-wages being deducted. The boys leave work in groups, twenty-two constituting a class. The lesson lasts thirty minutes, and in view of the fact that most of the boys are engaged in manual labour, before and after the lesson, the lesson itself is not of an exhausting character. Special attention is paid to abdominal movements; before the physical training classes were commenced, hernia was sometimes found amongst the boys, but no case has been recorded since. After each lesson half the boys, alternately, have a shower bath (eleven baths with hot and cold sprays adjoin the dressing-rooms), and thus each boy has a shower-bath once

a week. The boys on joining the Works are placed in the classes most suitable for them, the weak and backward boys being placed together, and great attention is given to strengthening, without in the slightest degree straining the body. Gymnastic classes are held during the winter months only. In the summer, swimming is taken in the men's open-air bath, the class being divided into two sections, the non-swimmers receiving instruction in the breast, back, and side strokes. When proficient, life-saving is taught, and many of the boys hold the Royal Life-Saving Society's certificate and medallion.

After undergoing a two-years' course in the day classes, the boys are, at the age of 16, transferred to the evening classes for another two years, attending one evening per week during the winter months only. The lesson lasts forty-five minutes, the work being of a more strenuous character than in the day classes. After the age of 18, the students are at liberty to attend one of the voluntary classes, which are held after work hours.

The remarks made above in respect to the training of the girls apply in the main to the training of the boys. The first paragraph of the syllabus of physical training for boys says, that "the aim will be to improve the health

and physique of the scholars, to develop alertness and decision, with that perfect control of the body which develops a consciousness of power, inspiring courage, confidence, and resolution. Style and precision of movement and progress in details are aimed at, not feats of strength and trickery."

A few Morris dance exercises are introduced into the gymnastic lessons. The classes are very successful, and their effect on the moral and physical development of the boys has been most marked.

Voluntary Physical Training Classes for Men and Boys.—The classes that the boys and girls must compulsorily attend have only been dealt with so far. In addition, there are advanced classes in various branches of study, carefully co-ordinated with the work of the classes for juniors. The syllabus of the physical training classes for boys and men contains:—

Boys	Gymnastics.
Men and Youths . . .	Gymnastics.
Boys	Swimming.
Men and Youths . . .	Swimming (Learners).
Men and Youths . . .	Swimming (Life-Saving).

The voluntary classes are held to suit the time at the disposal of the students, one being held from 5.15 to 6.15 p.m., thus enabling the

students to utilize the remainder of the evening for other engagements. In these classes a test scheme, extending over four years, is arranged. A set of exercises is drawn up by the teacher, and must be performed to the satisfaction of an examiner appointed by the Works Education Committee. Should the test be satisfactorily passed in the first year, the pupils receive a certificate to that effect from the firm; for the second year a bronze medal is awarded; for the third year a silver medal; and for the fourth year a silver clasp. Seventy-five of these awards were obtained by the men's and youths' sections in 1910-11, and sixty-nine in 1911-12. The advanced classes being composed of strong well-developed boys and men, the work is of a more powerful nature than in the earlier classes. Indian club exercises, useful for the development of the chest and abdomen, are taken, and the work on the apparatus is more advanced. In all classes the work is made more interesting by explaining the reason and effect of the movements, the necessity of fresh air, cleanliness of the skin, and the need of physical education.

The open-air swimming bath is at the disposal of the men and boys, and elementary and advanced life-saving classes are held in

the evenings during the summer. The girls' covered bath is reserved one night a week for men during the winter.

It must be noted that the attendance at these classes is voluntary, as far as the youths and men over eighteen are concerned, but properly qualified instructors conduct the classes, which are inspected by the Board of Education, and are grant-earning.

Voluntary Physical Training Classes for Girls.—The full physical training course syllabus for girls is as follows :—

1. Junior Girls . . . Elementary Course—Gymnastics (compulsory).
2. „ „ . . . Advanced Course—Gymnastics.
3. Senior „ . . . Gymnastics.
4. „ „ . . . Morris Exercises.
5. Junior „ . . . Swimming (compulsory).
6. Senior „ . . . Swimming.
7. „ „ . . . Life-saving.

The syllabus of the girls' voluntary class for Morris Exercises includes instruction in English Morris Dances, Folk Songs, and National Dances. “¹ The value of introducing dancing steps into any scheme of physical training as an additional exercise for girls, or even in some cases for boys, is one of the most useful means of promoting a

¹ Board of Education Syllabus of Physical Exercises for Public Elementary Schools, 1909.

graceful carriage, with free, easy movements, and is far more suited to girls than many of the exercises and games borrowed from boys. As in other balance exercises, the nervous system acquires a more perfect control of the muscles, and in this way a further development of various brain centres is brought about. The educational results of dancing differ somewhat from those obtained by formal physical exercises, which at times become monotonous notwithstanding the care taken in arranging the lessons.

“Dancing steps add very greatly to the interest and recreative effect of the lesson, the movements are less methodical and exact and are more natural; if suitably chosen they appeal strongly to the imagination and act as a decided mental and physical stimulus, and exhilarate in a wholesome manner both body and mind.

“Dancing is here, of course, considered solely from the educational standpoint, and it must be remembered that, though its value is very great, and in some ways unique, it can never replace the formal lessons in physical exercises, but should be used to supplement them.”

This quotation is given with approval because in practice the classes at Bournville corroborate the opinions it expresses. Dancing is especially advantageous for girls during the period of

adolescence. It frees the growing girl from that self-consciousness to which she is so liable, it teaches courtesy, good manners, and deportment, and so counteracts shyness and awkwardness. Again, in dancing there is a great recreative effect, as the music supplies the rhythmic impulse, and therefore the exercise does not make the same demand upon the nervous energy of the girl. This fact is valuable because a growing girl, who has been working in the factory all day, must avoid being over-fatigued in the evening.

MISCELLANEOUS WORKS CLASSES.

Correspondence Classes.—These classes were an experiment, arranged for the benefit of men and girls over twenty years of age, who were not desirous of attending the ordinary continuation school classes, and yet felt their deficiencies in elementary education.

The subjects taken were English and Arithmetic. There was an elementary and an advanced class for men, and the same for girls. The text books for the second year (1910-11), for example, were:—

MEN (Elementary and Advanced)—

English	. .	{	"The Cloister and the Hearth." Selections from Longfellow.
Arithmetic	. .		

Pendlebury and Robinson.

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GIRLS (Elementary)—

English . .	{ "Cranford." Longfellow's "Evangeline." Arnold's Language Lessons.
Arithmetic .	Pendlebury and Robinson.

GIRLS (Advanced)—

English . .	{ "Esmond." Selections from Robert and Elizabeth Barrett Browning's Poems. Arnold's Language Lessons.
Arithmetic .	Pendlebury and Robinson.

For the summer reading "Silas Marner" and Grant Allen's "Plant Life" were selected, introductions being furnished by the teachers.

For the second year the students in the Girls' Section numbered 18 in the elementary stage, and 21 in the advanced stage, being a total of 39. In the Men's Section there were 33 in the elementary stage and 19 in the advanced stage, making a total of 52 men students.

Questions were sent out each week with explanatory notes, and the students were allowed a week in which to answer each set of questions. After being marked, the books were returned to the students with a copy of model answers drawn up by the teachers. The teachers corrected and encouraged the students by means of remarks written in the exercise books, and the students were also advised to ask questions.

Monthly meetings between teachers and students were arranged, in order to allow the students to present their difficulties to the teachers personally, and also to enable the teachers to deal with points which were difficult to explain by correspondence.

The classes were held for two years, and the number of students on the registers during 1909-10 was 197 as against 91 in the second year. The decrease was no doubt due to the fact that the classes were at first looked upon as a novelty by many of the students.

These classes were held during the winter months only, and were not grant-earning because such classes could not comply with the present regulations of the Board of Education, which always require personal attendance at actual classes, and the marking of registers, before grants are given.

The correspondence classes, however, have now been discontinued, as they were considered to have served the required purpose, and were no longer necessary.

Classes for Men Employed at Night.¹—These classes are held on two afternoons per week from 1.45 to 3.45. The subjects taken are English and Arithmetic, or Physical Training.

¹ Only a small number of men are employed at night.

The class in English covers a course of short lectures illustrating the development of English literature. These lectures average about twenty minutes in length. Twenty minutes is then given to the study of an author, and another twenty minutes to writing from dictation, or transcription, the subject-matter being the lecture.

The teaching of arithmetic is throughout as practical as possible, many rules being illustrated and proved by measurements of actual objects. Special attention is also given to mental arithmetic.

It may be well to point out that the provision of classes for night men is a matter of supply and demand, depending on the requirements, as well as the number of men working on the night shifts at the particular time. For example, for the session 1911-12 they were invited to apply for English, Arithmetic, or Physical Training. For Physical Training there was a good demand and a successful class was held. In English and Arithmetic, however, the response was not sufficient to warrant the opening of classes. The opportunity will doubtless be held out to the night men again next session.

Ambulance Classes.—Classes in Ambulance work are held from September to March under

the auspices of the St. John Ambulance Association, the Works doctors being the instructors. The classes are very well attended, and the following are the numbers of men and women who have passed the examinations during the last five years :—

1907-8.	1908-9.	1909-10.	1910-11.	1911-12.
38 men.	52 men.	52 men.	53 men.	56 men.
43 girls.	46 girls.	48 girls.	53 girls.	60 girls.

Boys' Gardening Classes.—Several years ago the Worcestershire County Council started classes in gardening, on ground supplied at a nominal rent by the Firm. The Bournville Village Council acted as managers under the County authority, and the classes were open to all boys resident in the Village. Some months after the transference of the district from the county of Worcester to the city of Birmingham, in 1911, it was agreed that the Firm should become responsible for these classes. The management of the Boys' Gardening Classes is now vested in the Bournville Works School Committee, and the conditions prevailing are the same as those in the Girls' Classes, described below.

Of the students who take this subject, the boys are somewhat younger than the girls ; they are also more numerous, two distinct classes

being held for boys ; otherwise the methods of instruction, and the courses followed, are very much alike. The boys are either employed at the factory, are the sons of employees, or are resident in the village. The demand for places in these classes, as in the Girls' Gardening Classes, generally exceeds the available number of plots. Preference is given to employees when vacancies have to be filled.

Gardening Class for Girls.—The number of students in this class, as a rule, is limited to eighteen, and the period of instruction to three years. The class is held on three evenings per week during the summer months, and students are expected to attend for two evenings per week. During the winter it is held on Saturday afternoons only. There is a small flower-garden for each student, and a large vegetable and flower-plot in which all work together as requested.

The syllabus followed is that which appears on pages 253, 254, and 255, of the book of syllabuses published by the Board of Education for Technical Schools.

The students are enthusiastic and persevering, and work well together. One of the girls, who before joining the class had hardly known the difference between the various plants, said

that it was a perfect revelation to her how interesting the study was, and that she was so anxious to understand her plants that she read and thought about them. Another, about to marry and depart to a mining district in Scotland, said that, although she should at first live where it was almost impossible for a green leaf to grow, she should keep it before her as one of the aims of her life, that she and her husband would be able at some time or other to move out into the country, where they might have fresh air and a garden.

These classes are under the supervision of the Board of Education, and a Government grant is received.

Arithmetic Class for Men.—This class is held on one evening a week during the winter months, and was originally started by one of the foremen, who volunteered to act as a teacher, in order to assist those men who were members of the correspondence classes and experienced difficulty in doing the work set.

The class has now completed its third year, and it is still fairly successful. Twenty-nine men attended in 1909-10, thirty-one in 1910-11, and eighteen in 1911-12. The tutor is not a certified teacher, but the success of the class is due, to a great extent, to his enthusiasm

and perseverance. This class is not under Board of Education supervision.

The Board of Education reports on the Works Classes for the years 1907 and 1908 as follows :—

Year ending July 31st, 1907.—“The classes are of great benefit to the employees; and the teachers, who take great interest in their work, have obtained good results. The organization and management is most creditable to all concerned.”

Year ending July 31st, 1908.—“The organization and management of these classes is excellent. Physical training is undertaken by a highly-qualified staff, and the whole scheme is carefully arranged and well carried out.”

No reports were received from the Board for 1909 and 1910.

Apprenticeship.—The system of choosing apprentices and the method of training them were decided upon after most careful thought. It is now generally recognized that the system of apprenticeship that used to obtain is not adapted to modern developments, and it has fallen into disuse. The great industries of modern times include branches that are many and varied,

and the average youth could never master the details of every branch. Again, there is a great and increasing specialization of processes and a consequent subdivision of labour. Thus the employer cannot undertake that an apprentice shall learn every branch of an industry, and, in practice, it very often means that the youth merely learns some one process, and at the end he is little, if any, better than a semi-skilled workman. Some substitute for the old system of apprenticeship is wanted, and in the scheme about to be outlined, an attempt has been made to give as wide a practical experience as possible, and to supplement this practice by systematic theoretical training at a technical school.

As nearly all constructional work and repairs are carried out by the Firm's own employees, there are in the Works well-equipped shops, in which practical experience of a large number of trades can be acquired. There are twenty-six skilled trades, ranging from Carpentry to Confectionery, from Biscuit-making to Bricklaying. The general lines of the scheme are as follows :— All the boys who obtain employment at the Works must do unskilled work until they are 16 years of age, and at the same time must continue their education by attending physical training

classes, in the Firm's time in the day time, and continuation schools in the evening. At the end of that time, those showing special ability are selected to come under the Apprenticeship scheme, according to the number of vacancies in the trades. The basis of selection is :—

(1) Report from foreman.

(2) Report from evening school.

(3) A Works examination, which includes an essay on the trade the boy would like to enter. This is a test as to whether he understands the conditions of the trade he is selecting, and ensures that the choice is based on knowledge.

These reports are assessed by marks, the relative value being :—

No. 1	.	.	.	.	.	100
No. 2	.	.	.	.	.	75
No. 3	.	.	.	.	.	75

Merit and capacity, not favouritism, thus determine who gets this promotion.

The successful students are afterwards examined by doctor and dentist as to their physical fitness for the trade they wish to enter, and, where necessary, the report from the gymnastic instructor is also considered. The boys are then seen by a director and the trade's foreman, and the appointment is made, provided that the boy

signs an indenture to attend classes and to work for the Firm until he is 21.

The Works Education Committee, in consultation with the foremen concerned, have drawn up syllabuses for twenty-four trades. In these, it is laid down how the boy is to be employed in the shop, and what training he has to receive there in regard to the nature and use of tools, materials, etc. Part of this instruction is given to him by the foreman and part he is expected to pick up for himself. This is definitely pointed out both to the boy and the foreman in the form of a letter. These letters may be given *in extenso*, as they help to explain the spirit and method of the scheme.

The following, for example, is the letter sent to the boy apprenticed to carpentry.

“BOURNVILLE WORKS EDUCATION COMMITTEE.

“*Re Syllabus for Apprentices in Carpentry
Department.*

“To

“With reference to your appointment as an apprentice to carpentry, a syllabus has been drawn up showing in a progressive form the various points with which you will require to be

acquainted, in order to become proficient in your particular trade.

“These may be briefly summarized into three headings:—

“1. *Observation*.—Knowledge which you can get by observing how work is done, and by making inquiries from your shop-mates and others.

“2. *Theory*.—Knowledge which you can get by attending Technical Classes, and from studying text books dealing with your trade.

“3. *Practice*.—Knowledge which you will get by practical experience in doing the various classes of work upon which you will be engaged, and which the foreman gives you to carry out.

“It is intended at the end of each year to hold examinations and tests as regards the three points given above.

“You will be advised year by year as to the courses you should take at the Technical Schools, and these will be so arranged as to form a progressive study. Technical Education is most important to all those engaged in the carpentry trades. It will enable you to have a thorough understanding of the principles of your trade; it is this which distinguishes the true mechanic from the man who works by rule of thumb. A knowledge of drawing is most essential, not only to enable you to put your ideas on paper in an intelligent manner, but also because such knowledge makes you more

valuable to your foreman and employer, by enabling you to carry out your work by means of drawings, thus saving time and material, and preventing mistakes.

“We hope you will strive to do your best in your work, and will endeavour under all circumstances to do it intelligently, thoroughly, and in a reasonable time.

“Rewards will be offered each year to those apprentices who obtain a certain number of marks from their test; these will be given in the form of tools, books, or other educational facilities.

“Should you meet with any difficulties in connection with your work, the educational organizer will at all times be pleased to see you.

“We trust you will be most successful, so that when the end of your apprenticeship comes, you will be a credit to the trade to which you have been apprenticed.

“CADBURY BROTHERS, LIMITED.”

The letter to the foreman is as follows:—

“BOURNVILLE WORKS EDUCATION COMMITTEE.

“To the Foreman,

..... Department.

“Enclosed please find syllabus for apprentices to the This has now been approved by the Committee.

“ We think it has been explained that the Committee do not in any sense wish that these syllabuses should form a *strict* time-table, but rather that they should act as a guide, both to the foremen and apprentices, as to the various essential points which the boys should know in order to become proficient workmen.

“ The subjects under the headings set out in the syllabuses may be summarized briefly as follows : Observation, Theory, Practice. An endeavour has been made to set out, in progressive form, in connection with each trade, the various points which it is essential for the apprentice to know in order to make himself an efficient workman. As stated, first, the knowledge which he himself can get by observation and inquiry ; second, knowledge which he will get in Technical Schools and text books ; third, practical experience which he will get by working at his trade.

“ Enclosed is a copy of the explanatory letter which is sent to each apprentice.

“ It will be seen that if the apprentices will do their best, and follow out the courses suggested, and if the hearty co-operation of the leading men is secured, it must have the effect of turning out workmen who will be a credit to their respective trades.

“ CADBURY BROTHERS, LIMITED.”

A copy of the syllabus is, of course, given both to the boy and to the foreman. The following is the actual syllabus for carpenters and joiners.

“BOURNVILLE WORKS EDUCATION COMMITTEE.

“*Apprenticeship Scheme Syllabus for Carpenters and Joiners.*

- “*First Year.*—Knowledge of tools—their construction and uses.
 Elementary knowledge of timber.
 Uses and characteristics of various kinds of wood.
 Elementary practice in the use of cutting tools,
 and how to sharpen them, including saws,
 planes, chisels, gouges.
 Knowledge of construction, names, and uses of
 simple joints.
 Workshop arithmetic for carpenters.
 British and metric systems of measurement of
 length, area, etc.
 Hand sketching.
- “*Second Year.*—Advanced knowledge of tools and their uses.
 ” ” timber, including growing,
 seasoning, selection of timber, qualities, faulty
 characteristics of various woods.
 Materials used in constructive work, including
 glue, screws, nails, coach screws, bolts, dowels,
 various fittings, etc.
 Advanced knowledge of wood-working tools and
 sharpening of them.
 More advanced knowledge of names and uses of
 joints and their proportions.
 Elementary work, including making of joints,
 roughing out, plain constructive work, wood-
 working machines.
 Advanced arithmetic. Hand sketching.
 Practical setting out of simple pieces of joinery.
 British and metric systems of measurement of
 length, area, etc.

"Third Year.—Stacking and drying of timber.

Strength of materials.

Building construction.

Elementary knowledge of roof work, including construction of principals, beams, rafters, joints, straps and fastenings, and methods of setting out work.

Elementary constructive work, including doors, framing, moulding, floors, partitions.

Scale drawing. Reading of working drawings.

Elementary wood turning. Sketching.

"Fourth Year.—Advanced strength of material.

„ building construction.

More advanced practical work, including roof work, doors and frames, window casements and sashes, frames, skylights, simple stair work, etc.

Construction and working of wood-working machinery.

Method of planning and converting materials so as to avoid waste and shrinkage and obtain the maximum strength.

"Fifth Year.—Simple graphics as applied to carpenter's work.

Stair-casing and hand-railing.

Construction and setting out of roof work and methods of strengthening beams, girders, etc.

Various methods of constructing centres for arches.

Advanced general work.

Circular work.

Methods employed to bend boards, ribs, or moulding by kerfing, grooving, steaming.

Estimates, quantities, specifications.

"Technical Classes.—Apprentices will be advised each year as to which classes they should take."

These syllabuses have been drawn up with a view to enabling apprentices to pass the City and Guilds Examination, in trades where such are held. Grade I. can be taken after two years' study, Grade II. in four years, and the

final, by skilled tradesmen, after the completion of apprenticeship.

The following educational facilities are arranged especially for apprentices :—

- (a) Exemption from overtime.
- (b) Attendance at afternoon classes and time for doing homework in the afternoon.
- (c) Exemption from work before 9 a.m. on the day following a late evening class.
- (d) Financial assistance towards fees, tram fares, train fares, and the purchase of tools.
- (e) Free use of Trades Library.

In addition to these, the apprentices have the same concessions which are given to all junior employees, and which are explained elsewhere.

The following is a detailed description of some of the more important facilities outlined above :—

Afternoon Mathematics Classes.—The position of the Bournville Works, being four miles from the centre of Birmingham, precludes the establishment in the immediate neighbourhood of afternoon classes in many technical subjects. For two sessions, however, two courses of Practical Mathematics have been held at an adjoining Technical Institute, and have been attended mainly, though not solely, by apprentices in the trades carried on at Bournville. Each class meets twice a week

throughout the winter session, from 4 to 5 o'clock on one afternoon, and from 5 to 6 o'clock on the other afternoon, the apprentices leaving work half-an-hour before the time fixed for the commencement of the lesson.

Homework Preparation Classes.—Facilities are given to apprentices to do their Technical School homework under supervision and guidance, during the day, in what are described as "Preparation Classes." These classes are held in the Youths' Club, for convenience of access to the Trades Library, which includes reference books on practically all the skilled trades carried on at Bournville Works. Writing and drawing materials are provided, and informal instruction is given on such subjects as note-taking, power of expression, use of reference books, and the setting out of written work.

It is a matter of common knowledge that the young apprentice hardly knows how to study. He cannot plan his own reading, his knowledge of the setting out of written work is limited, and when turned loose on a large book of reference, he is apt to get lost entirely. In addition to this, his home conditions are often such that quiet for private study in the evenings is very difficult to obtain. For these reasons

the experiment of "Organized Homework" in Works time is one of considerable interest.

The theoretical training is obtained, where possible, in the schools of the Education Authority of the district, except in the case of special trades such, for example, as biscuit-making, where of necessity the theoretical instruction is given in the Works. It is recognized that the scheme can be fully successful only by co-operation between the Firm and the local Education Authorities. It would be a waste of time and money, even if it were possible, for the Firm to attempt to give instruction in theoretical subjects for which the local education committee has teachers, class-rooms, and apparatus. Lectures and tuition on many points are given in the daytime and evening by members of the Works staff. The Firm requires to be fully informed as to the progress of the apprentices in the classes under the Education Authority, and, in turn, the Firm supplies to the Authority all necessary information they require respecting the apprentice and his progress in the Works.

Each student pays his own class fees, but if he has made 85 per cent. attendances, and obtains a good report from his teacher, the Firm repays these fees.

The apprentices receive wages on a scale which is lower than that of boys not learning a trade. Prizes and awards are given to them by the Firm according to age and attainments. The scale of awards is as follows :—From 7*s.* to 15*s.* for the first two years, and from 20*s.* to 50*s.* during the subsequent years.

Trade Examiners.—At the present time there are apprentices in twenty-four of the twenty-six skilled trades carried on at the Works, and in every case the youth's progress is tested by means of an annual Trade Examination. With the exception of a few trades, which are so specialized that examination by an outsider would be impracticable, these tests are conducted by skilled tradesmen from other works, generally recommended by the Trade Union concerned. The selection of the examiners is a matter at once of much difficulty, and considerable interest. The Works Education Committee, being responsible for the conduct of the Apprenticeship Scheme, regard it as absolutely essential that the Trade Examiner should be a thoroughly practical man, commanding both the respect of the apprentice and the confidence of the foreman. If he has had some experience as an Instructor in a Technical School, so much the better, but most of the men

appointed have neither taught, nor examined. The setting of papers, and the planning of practical exercises, present real difficulties to such examiners, and call for collaboration on the part of the Works educational officials. Subject to the limitations indicated above, the system has, on the whole, worked well, especially in the larger trades, such as fitting, and carpentry, where excellent questions have been set by the examiners, and many valuable suggestions made. In several minor trades, however, the really efficient examiner has yet to be evolved or discovered.

The present system has the great advantage of bringing the Firm's apprenticeship scheme prominently before the notice of Trade Unions, and enlisting the support of these bodies in the important work of training young artisans.

The apprenticeship scheme entered its third year in 1910-1911. At Midsummer, 1912, the number of apprentices was 57. Withdrawals and removals, owing to various reasons, made the number less than it should have been. About a dozen new appointments are made each year. A party of those belonging to the fitting-shop visited the large works of a local firm of engineers, and afterwards wrote accounts of

what they had seen ; visits to other firms were also arranged. Apprentices in the book-binding and other departments gained successes in national competitions.

This scheme is tentative and experimental, but is being carefully watched both by the Firm and by the Board of Education, and will be revised where experience shows the necessity. One of the difficulties is that of obtaining the necessary classes under the Education Authority in the afternoons, since the number of apprentices employed by the Firm in any one trade is small. The promoters of this scheme, however, without in any way putting it forward as more than an experiment, are anxious to see employers and trade unions co-operate in some such scheme. If masters and men could be associated with a central examining body, in order to revise and draw up the syllabuses, and to keep the examination on lines parallel with trade practice and development, the provision of technical education would at once be simplified and extended. Classes in the afternoon and evening could then be supplied by Education Authorities, since the number of apprentices drawn from all the works in any one trade in a town would be sufficient to justify such classes. And there is no doubt that the

combined practical experience of masters and men, together with the advice of educational experts, would evolve a definite and suitable scheme of practical and theoretical training, and would tend to make it compulsory for youths who desired to excel in a skilled trade to acquire a thorough knowledge of its theory.

Trade Classes.—The subject of a recent Presidential Address to the Association of Technical Institutions was “Shall we teach Trades?” The answer is surely in the affirmative, but further questions immediately arise. How and where shall we teach trades? By apprenticeship schemes, by classes, or by both? In technical schools, or in factories? Who shall be financially responsible, the public authority for higher education, or the employer? Who are the ideal persons to teach trades? Probably a highly-specialized trade, or a trade which is practised mainly at a particular factory, can be taught most efficiently in the workshop of the factory concerned, by skilled practical men and women, experts in the special class of work, and amid the environment and equipment which the student associates with serious work, rather than amid equipment which is on a small scale,

and somewhat obsolete in type, as technical school appliances frequently are.

Under these conditions, it seems reasonable that the employer should assume the responsibility for holding trade classes, and should bear the bulk of the cost. If he has at his disposal more competent foremen and officials, and more modern appliances, than have other factories in the same industry, then the case for giving systematic class teaching in his own workshops, in selected trades, is all the stronger, from the standpoint both of employer and employee.

These theories have been put into practice at Bournville, by the establishment of three different series of classes, dealing respectively with card-box making, confectionery, and office organization. The latter subject hardly represents a "trade" in the ordinary sense, but the *raison d'être* of the classes is the same in all three cases.

Possibly the card box classes form the most interesting example, and as systematic teaching of this subject is a novelty, no apology should be needed for describing this group of classes in some detail.

Card Box Making Classes.—In the card box department, there has been in operation

for some time a system of training, by which the younger girls (classified as "Learners") pass through a three years' course, which corresponds to a simple form of apprenticeship. In order to consolidate the information received by the girl during her period as a learner, and to give her a comprehensive and intelligent view of the box-making trade, these classes are being developed. Technical instruction in this particular trade is largely of the nature of pioneer work, and the extent of the syllabus, as well as certain other details, are necessarily tentative.

During the session 1911-1912, elementary classes only were held, in three parallel sections, each consisting of eight girls. These girls received practical instruction in the fundamental operations of box-making by hand. Right methods of working were substituted for the wrong methods which the girls had picked up. The students were trained in the detection of errors committed in previous operations; manual dexterity was acquired in some of the operations which present difficulties to the learner, and certain simple types of boxes were made throughout. This preliminary course served, directly or indirectly, many useful purposes. For instance, it enabled the head of the department to eliminate those girls who

gave no promise of ever becoming first-class box-makers, and to transfer them to machine work. It also formed the basis for the more ambitious series of classes contemplated for session 1912-1913, described below:—

PRINCIPAL COURSES.

- 1A. Junior box-making course (two sections of girls).
- 1B. Senior box-making course (one section), for girls who have attended the junior course for one year.

SUBSIDIARY COURSES.

2. Course for machine girls.
3. Short course of lectures on Paper and Cardboard for girls in paper-cutting room.

The main courses of box-making (junior and senior) are taught by the head forewoman of the department, with the assistance of a highly skilled worker.

The subsidiary course for machine girls is taken partly by the engineer attached to the card-cutting and card-box rooms. The "cost" side of machine work is included, for the purpose of showing how serious is the loss caused by an expensive machine standing idle during the ordinary hours of work. Surely nothing but good can come from the girl who tends the machine having a sound, if elementary, understanding of the principle involved in its

construction, its action, and its management, even though her work upon it may consist largely of automatic repetition.

One of the Firm's officials, who has charge of the buying of paper and cardboard, and who has given very special attention to these substances, has been asked to lecture on the third section of the syllabus. These personal details are mentioned, to show how Works officials, appointed primarily for other purposes, may be combined so as to form a very efficient staff for a group of trade classes.

Confectionery Classes.—The lines on which trade classes may be developed, so as to become a unit in the organization of a factory, have been indicated above. Classes held in connection with other trades can therefore be dismissed briefly. The confectionery classes, junior and senior, are very technical in their character, and deal with a somewhat specialized trade. It is therefore sufficient to say that the syllabus covers the history and description of the materials used, various methods of manufacture, principles involved in each process, and the common causes of failure, and methods adopted to obviate them.

The classes are held in the evening, and selected students only are allowed to attend.

At the end of the session class examinations, both theoretical and practical, are held. The results are very satisfactory, those in the senior class especially so.

Office Routine Classes.—Similar in character to the classes described above, though differing considerably in their object, are those held in office routine, with special reference to the methods in vogue at Bournville. While the card box making, and confectionery classes, aim at supplying instruction in subjects not generally touched at technical schools, those in office routine are intended to supplement the information received in an ordinary commercial course, and to apply it to particular conditions.

The junior course (of three sections) deals with the work of the general office, typical orders being traced through all the stages into which they are likely to pass. The senior course treats of matters coming within the various provinces of export, buying, wages, and cost offices.

Of all the foregoing classes, called, for want of a better name, "Trade Classes," it may be said, that the students show a degree of keenness and interest seldom exceeded in a technical

school. Probably this is due to the fact, that the positions held by the teachers are such as to inspire confidence, while the environment of the classes makes the instructions real. Card-box making is taught between 8 and 9 o'clock in the morning; office routine in the early part of the afternoon; confectionery, in the evening after work hours; but each class secures an almost perfect attendance, whether held in the Firm's time or not.

The Bournville Works Education Committee are giving considerable attention to the process of grafting a trade school on to a factory of this type. The finished product should be an institution to which the name "Works school" can be fitly applied.

The table on p. 66 gives at a glance an idea of the scope of the classes carried on within the Works, but does not include the External classes.

In the following *résumé* of the educational activities connected with Bournville Works, the classification of "Internal" and "External" is adopted:—

A. "Internal":—Work carried on at the factory ("Bournville Works school") :—

1. Apprenticeship scheme, affecting 26 distinct trades.
2. Trade Classes:—Classes directly bearing on work done in the factory, *e.g.* confectionery, card-box making, office routine.

Number of Class entries.

Description of Classes.	When held.	1908-9	1909-10	1910-11	1911-12	Remarks.
1 Physical Training (Gymnastic and Swimming), Junior Girls (compulsory).	Morning and Evening	447	548	1005	1299	74 classes
1 Do. Boys (compulsory).	Morning, Afternoon, and Evening	173	267	442	529	36 classes
1 Do. Girls (voluntary).	Evening	725	754	480	500	12 classes
1 Do. Men and Youths (voluntary).	Evening	230	313	240	262	11 classes
1 Continuation Classes, Night Men, English and Arithmetic	Afternoon	—	13	25	27	Note: The same individual student frequently attends more than one class, e.g. Gym. and Swimming; Gym. and Morris dancing, and so on.
1 Office Routine—Three sections.	Afternoon	—	—	—	43	
1 Card-box making	Morning	—	—	—	24	
1 Confectionery—two stages	Evening	—	—	48	33	
1 Gardening—Boys, two sections	(Saturday afternoon in winter; evening in summer)	16	18	19	18	Taken over from Birmingham Education Authority in 1912.
1 Gardening—Girls	Evening	140	187	66	70	
1 Ambulance—Men	Evening	—	29	85	99	Handed over to Education Authority in 1910. Discontinued, having served the purpose for which they were started.
1 Do. Girls	Evening	—	59	31	18	
1 Arithmetic—Special Class for men	Evening	—	21	—	—	
1 Dressmaking and Millinery	Evening	—	197	91	—	
1 Boot Repairing	—	—	—	—	—	
Correspondence Classes (Men and Girls).	—	—	—	—	—	
Homework Classes for Apprentices	Afternoon	—	—	—	48	

1 Classes recognized by the Board of Education.

3. Physical training departments for boys and girls:—Gymnastics, Swimming, Life-saving, Morris dancing.
4. Miscellaneous:—Classes in Ambulance (for men and for girls); Gardening (for boys and for girls); Arithmetic (for men), etc.

B. "External":—Schemes in which the Works Education Committee co-operates with and assists the public authorities for higher education:—

1. System of compulsory attendance at evening schools and technical classes, affecting 1600 students. Limits of age:—Apprentices 21, Office employees 19, others 18.
2. Rewards based on a three-fold report from (*a*) foreman or forewoman, (*b*) evening school, (*c*) physical training; and varying in value from 7s. to £2 10s.
3. Facilities granted especially to apprentices in the way of afternoon classes, homework classes, trades library.
4. Return of fees to all compulsory evening class students making over 85 per cent. of possible attendances.
5. Information and advice obtainable at Works Education Office by all employees irrespective of age, on all matters affecting either their own education, or that of their families.

The net cost to the Firm of the educational scheme for the session 1909-10 was about £2,396, and for 1910-11, £2,782.¹ These amounts include teachers' salaries, office expenses, fees, printing, teas for students, time, etc., but in all probability they hardly represent the entire cost of the scheme.

¹ The rewards given to students (see table on p. 25) are not included in this amount.

CHAPTER III

DISCIPLINE

THE method of maintaining discipline in large works is an exceedingly important factor in efficient organization. It is essential that there should be a full utilization of the powers given by the system of discipline, and by the opportunities presented by factory life, in bringing together, day by day, large numbers of men and women, to obtain individual improvement and development, as well as the industrial efficiency of the business.

It must be remembered, that the ideal should be to secure the development in character and efficiency of the employee, to make him feel that he is doing the best work of which he is capable, and that such effort and efficiency will receive adequate recognition and reward. Thus the discipline to be aimed at is, not one that demands unreasoning obedience, but one in which the workers recognize the relation between all members of the industrial organization, workers, foremen, and employers

alike. The worker must recognize that the welfare of employer and employed are not antagonistic, but complementary and inclusive, and that each position brings its duties and its rights. Thus the workers are led, not driven, and each consciously co-operates with the management in working for a common end.

In the early history of the Firm, there was the usual system of fines and deductions, with various penalties for the breaking of different rules, and there were also deductions for spoilt work, etc. The three principal causes of fines were late time, spoilt work, and disorderly conduct. The experience of the system showed that it was not in any way reformatory, and that it had little deterrent influence upon the offenders. If a fine was imposed, the fine was paid, and the matter was dismissed from the mind, with no abiding influence on the character of the delinquent. The payment was felt to have wiped out the offence, and other offences could be cancelled on the same condition. The tendency seemed to be, that the offender felt that he or she had satisfied the demands made in regard to the particular delinquency, and could then go forward as if nothing had happened.

The Firm was seriously considering the

question of re-organizing the fines, when the whole matter came before them on account of the amendment of the Truck Act in 1896; and it was thereupon decided to abolish all fines, and to substitute some other system of discipline in their place. The old system did not lead to efficiency, and did not weed out the habitual offenders, and the effect both from the workers' and the employers' point of view was unsatisfactory, compared with what has been accomplished since.

In 1898 the Firm abolished fines, and left the right of punishment and dismissal in the hands of the directors, and foremen and forewomen could only report delinquencies to them. Since the establishment of the present system, there has been a gradual but marked improvement in time-keeping, conduct, and quality of work. The system was begun with record books, in which were entered the names of individual workers, cases of misbehaviour, and other offences. Late time was booked by the time-keeper, and afterwards recorded against the individual in the record book. Cards were then substituted for the record books in the case of girls, and used in conjunction with the record books for men and boys, and this is found to be a much better system.

It is to be noted that as a general rule all the Firm's girl employees are taken on without references.

On the girls' side one of the directors sees the alleged offenders each month. The offender, the forewoman of her department, and two head forewomen are present. The offender has the right to speak on her own behalf, and if there is no doubt about the offence, the penalty is decided upon, and in this way justice is more likely to be done than if a hasty decision had been arrived at immediately the offence was committed. For the first offence the penalty is usually a caution, which is often effectual, a large proportion of those cautioned never coming up again. If the offender does come up again the penalty would probably be suspension, or might even be dismissal, but usually, for a second offence, the offender would be suspended from work, that is, she would be sent home for from three days to a week. There is, however, no hard and fast line; the punishment depends upon the nature of the offence and the character of the offender. The whole system is designed to be reformatory, and not merely punitive. In the case of no further offence for two years, the card is destroyed, in order to give the person to whom it belongs

the opportunity of starting again with a clean record, as it is not considered fair to keep a permanent black mark against an employee for an old offence. The general result is very much better than that effected by a system of fines. The character of an employee has often been found to have improved after a caution, or after the offender has been sent home. In many cases, the worker is stimulated to do better work, to be more self-respecting, and to conform to the discipline of the department. In some cases it is found that the trouble has arisen through the ill-health of the worker; a girl who is run down in health is often irritable in her temper, or careless in her work. Such cases require careful and sympathetic treatment. One girl, for example, who was reported for insubordination, and for being impudent to her forewoman, was sent to the Firm's convalescent home for six weeks, and came back very much improved in health, the forewoman afterwards reporting that she was one of the best workers in the room, and that there had been no recurrence of the trouble. This has proved by no means an isolated case.

At the beginning, the workers would have much preferred to keep on the system of fines, even suggesting that, instead of being recorded,

they would pay a much larger fine than had previously been levied, because they thought that when they had paid their fine they were finished with the offence, whereas they regarded the record system as more severe; but they now have no objection to the present system.

The industrial and economic effects of the system are undoubtedly good. It has led to greater efficiency, because it has been possible to weed out the inefficient. Industrial efficiency and the moral status of the people have both been improved by its means, and, for these and other reasons, a higher class of workers is obtained. The number of women discharged was larger under the old system than at the present time. Merit records are awarded for exceptional conduct, and these as well as the records for offences are considered at Time Wages Revision.

There are no deductions made for bad work or for spoilt material; the work is mainly done on the piece-rate system, good work only being paid for. The work is looked over, and the bad work is separated. The piece-rates are based upon the average output of good work, and if both bad and good work were paid for, the piece-rates would have to be adjusted, and in the long run the workers would not necessarily be better off.

74 INDUSTRIAL ORGANIZATION

Bad conduct includes untidiness of person, noisiness, impudence to superiors, moral delinquencies, and disobedience. The rules are extremely strict with regard to cleanliness.

The following table is made up for the years from 1899 to 1910 inclusive, and contains the cases of bad marks put on the record for late time, bad work, and bad conduct, the total number of offences, and the total number of offenders, also being given. The system was only just adopted in 1899, and it is doubtful if the first two years are as trustworthy as the rest. The records of the later years are better and more systematic :—

Year.	Late Time.	Bad Work.	Bad Conduct.	Total Offenders.
1899	45	161	700	229
1900	115	129	532	328
1901	208	51	127	376
1902	54	11	209	274
1903	72	14	123	209
1904	39	13	87	139
1905	33	19	93	145
1906	34	28	65	127
1907	20	35	46	101
1908	7	25	72	104
1909	6	17	67	90
1910	7	15	48	70

The number of punishments recorded is divided into three classes, as given in the following table :—

Year.	Cautioned.	Suspended.	Discharged.	Total.
1899	190	26	13	229
1900	254	53	21	328
1901	281	54	41	376
1902	210	28	36	274
1903	167	31	11	209
1904	93	28	18	139
1905	104	28	13	145
1906	78	24	25	127
1907	59	24	18	101
1908	55	17	32	104
1909	57	16	17	90
1910	35	13	22	70

The percentage of girl employees who have been on the record book for each year is given below, together with the percentage suspended and discharged:—

Year.	No. of girls Employed.	Percentage Recorded.	Percentage Suspended.	Percentage Discharged.
1899	2,013	11·37	1·29	0·65
1900	2,177	15·06	2·43	0·96
1901	2,292	16·4	2·35	1·78
1902	2,396	11·43	1·17	1·50
1903	2,430	8·6	1·27	0·45
1904	2,468	5·63	1·13	0·73
1905	2,472	5·86	1·13	0·52
1906	2,554	4·97	0·94	0·97
1907	2,764	3·65	0·86	0·65
1908	2,812	3·69	0·60	1·13
1909	2,948	3·05	0·54	0·57
1910	3,140	2·22	0·41	0·70

The employees in each department, on arrival at work, turn a metal check on a board, and the forewoman records those who are

late. Half an hour is the longest time the employees are kept out for lateness. The late time cases increased in 1901 to 208, but from that date onwards, they have gone steadily down. The average length of late time is from five to ten minutes, but allowances are made to meet exceptional conditions; for example, women are allowed to be late once or twice a month if it is not habitual, without being reported; and lateness caused by exceptionally bad weather or late trains, is not recorded. In the case of absence through temporary illness, there is a stated time during which they can come up to the Works forewoman, and such lateness or loss of time would not be recorded against them. It is necessary to go to the Works forewoman with their explanation, otherwise the record against them for lateness will stand; if the explanation is satisfactory, no entry is made.

In 1899 there were 161 cases of bad work recorded, and these have gone down, under the record system, until there were only 15 cases in 1910. The types of offence which would be considered worthy of being chronicled, under the head of bad work, would be careless packing in a box, or the careless affixing of labels, leaving finger-marks on goods, using incorrect labels for

boxes, incorrect weighing, etc. These cases were reduced in 1910 to 15 for 3140 workers, so that bad work has been greatly reduced under this system. A record is made for the second offence, but not for the first, unless the first offence is very flagrant; however, in 1911, the practice has been more stringent in regard to this; the first offence is now reported to a director, thus largely increasing the number cautioned. Defective work caused by the weather or a new process is judged by an entirely different standard, as is also the work of new employees.

The cases of bad conduct have gone down from 700 in 1899 to 48 in 1910, so that bad conduct has been substantially eliminated, but the system of selecting and training the employees, has greatly helped in this reduction. The forewomen often deal with first offenders by cautioning them, and every case of bad conduct would not be recorded. A forewoman would prefer to maintain discipline without recording the offence; if she were unable to do this without constantly resorting to the record card, she would be regarded as incapable of properly looking after her department. Moral suasion is sufficient in most cases to maintain the discipline of a department.

The punishment recorded is divided into

three classes, caution, suspension, and discharge. In 1899 there were 2013 girl employees, and in 1910 there were 3140, an increase of more than 1000. In 1899 out of these 2013 employees there were 229 cases on the record book, being 11.37 per cent.; and in 1910, there were only 70 cases out of the 3140 employed, being 2.22 per cent. Experience shows that it would not have been possible to come down to these figures by a system of fines, but that the offences would have kept nearer the line of the 1899 and 1900 figures, even taking into account the improvement in education, physique, etc.

Slow Workers (Girls).—Another important class that have to be dealt with are the slow workers, that is, those that regularly earn less wages than the minimum fixed for their class of work. Almost all the girls and women are on piece-work, and therefore the slow workers are generally detected. The simplest plan, from the employer's point of view, of dealing with the inefficient would be to discharge them, but this method does not appeal to the employer who realizes his responsibility to the workers, and who also understands the dire effect that the workers' dismissal may have upon their future career. Moreover, inefficiency often arises from some cause beyond the employees' control.

Accordingly, at Bournville, dismissal is the last resort, after all the various reformative and remedial agencies and influences have failed.

The method adopted is as follows :—Every girl worker who does not earn the minimum wage comes before a director, when a report of her general behaviour is presented. The girl is also examined by the doctor, who reports on her physical condition. The director, therefore, when he interviews the girl, has her general record, as well as the doctor's report, and also the report of the forewoman. The doctor's report often shows at once that the girl's general health is at fault, and she is then placed under medical care, with instructions to follow the advice implicitly. It may be decided that a rest at the convalescent home, provided by the Firm, is the first step in the treatment, and if so, the girl is sent away for a month, or even more. Other cases are supplied free with strengthening medical foods, such as cod-liver oil, malt extracts, etc. In some cases, it is found that the girls have formed bad habits of staying up late, and do not get sufficient sleep. Others stay in bed till the last moment, and come to work without having had any breakfast, which naturally tends to undermine their health, and therefore their industrial efficiency. Others again

are found to be underfed, because of want of food, or want of proper varieties of food, this lack being due to the general poverty or bad management of the family, and in such cases extra food is supplied by the Firm, on the doctor's recommendation. There are many such details that kindly and sympathetic inquiry brings forth, *e.g.* sometimes the girl is giving the whole of her wages to the upkeep of a poor home. In a few cases, about 5 to 7 per cent. of the slow workers, it is found that the girls are indolent and lazy. This is especially the case if the girl is an only child of fairly well-to-do parents, and comes to work merely for pocket-money, and pays little or nothing to the home expenses. Such cases can be dealt with only by a warning to the girl, and also to her parents, and unless there is improvement she is dismissed. Another cause of inefficiency, is simply that the girl is in the wrong place, trying to do work for which her physical capacity, or her temperament, is unfitted. In these cases a change of employment quickly brings improvement. By far the larger number of cases are found to be those, who, for some reason or other, are in a state of physical debility. These cases, as stated above, are put under the doctor's care, and given a six months' further trial, on

condition that they carry out all the doctor's requirements as to diet, exercise, hours of going to bed, etc.

The following are a few examples of girls who have been on the slow list :—

A. This girl was interviewed in September, 1907, when she was a card-box learner. The girl under whom she worked complained that, though she was industrious, her work was poor. Her shoulders were very round, and she walked badly. A. said she was extremely fond of books and liked 'figures'. She had several months' leave of absence, during which she attended the Works gymnastic classes, and she greatly improved in health and general appearance. She was then transferred to the Wages Department, having done well in classes in Mathematics.

B., another girl, was a good chocolate coverer, but very slow. She was found to have had a long life of self-denial, and was living under poor conditions. Better lodgings and country holidays turned her into an efficient worker.

C. was making very poor wages, and worrying very much over her work. She had bad spinal curvature, and when first examined had indifferent health. She was sent to the Firm's convalescent home, and massage and exercises were directed to strengthen her back. She has been carefully supervised, and the height of her stool, etc., regulated, and her wages have gone up from 6s. to 15s.

D. was on the slow list in December, 1911. She was much run down, and was sent to the convalescent home for a month. Her health very much improved, and her wages have gone up considerably, withdrawing her from the list of slow workers by a good margin. Her health, however, is again becoming rather unsatisfactory, and she will, if possible, be sent to the convalescent home shortly, as a precaution against a breakdown.

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It is an instructive and hopeful fact of wide social and economic significance, that such a large number of the cases of inefficient workers can be raised to a standard of efficiency by such simple precautions and remedial measures as above described. The following table shows the results of this method. It gives the record of the girls who were reported in 1906 as inefficient.

The number of slow workers reported in 1906 was 78.

Of these (in 1907) :—

- 3 were discharged (2 immediately and 1 after further trial).
- 14 left during 1907 = 8 to be married.
 - 2 to stay at home.
 - 1 to go to Canada.
 - 1 rather than see the doctor.
 - 2 no reason stated.

-
- 1 was made a telephone operator, and was very quick at that work, although slow at her previous occupation.
 - 2 were made time-workers.
 - 17 reached standard or were above it.
 - 41 remained below standard.

In 1908, of the 17 of these girls who reached the standard in 1907 :—

- 16 remained at or above the standard.
- 1 was on the whole year slightly below.

Of the 41 of these girls who were below the standard in 1907 :—

- 1 was made a time-worker.
- 6 left during 1908 = 2 to be married.
 - 1 to go to another situation.
 - 1 to stay at home.
 - 2 no reason stated.
-
- 22 reached standard or were above it.
- 12 remained below.

In 1909, of the 38 of these girls who were at or above standard in 1908:—

- 2 died.
- 2 left = 1 to be married; 1 reason not stated.
- 29 remained at or above standard.
- 5 dropped below standard.

Of the 13 of these girls who were below standard in 1908:—

- 5 reached standard or were above it.
- 7 remained below.
- 1 left to be married.

One of the slow workers reported in 1906, who was put on time-work in 1907, was in 1908 again put on piecework, but remained below the standard.

In 1910, of the 34 of these girls who were at or above standard in 1909:—

- 1 was discharged.
- 31 remained at or above standard.
- 2 dropped below standard (the work of one of these had been changed five times in order to find the work best suited to her).

Of the 12 of these girls who were below standard in 1909:—

6 reached the standard or were above it.

6 remained below (one of these was retained, as a cleaner, in the early part of the year; another had her work changed in the latter part of the year and then reached the standard).

The work of several of these slow workers was changed, resulting in many cases in improved speed. Three girls had their work changed twice; two girls had their work changed three times; the work of one was changed five times and of another six times. The rates of many of these slow workers fluctuated, and the results given above are on the average of the whole year. Some of the girls went well above the average in subsequent years after being reported.

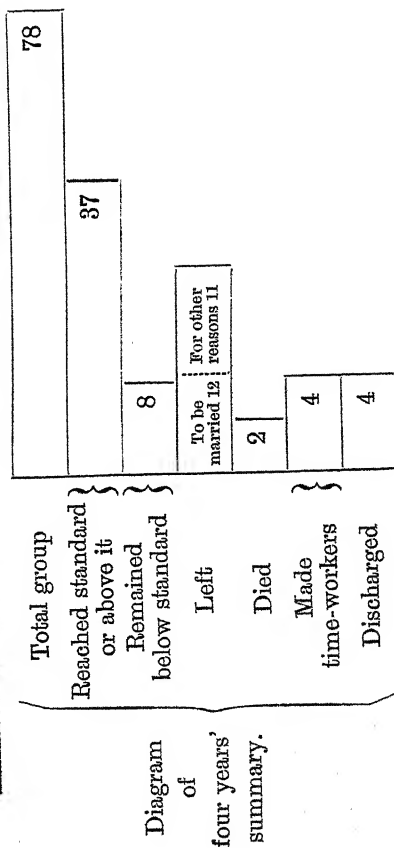
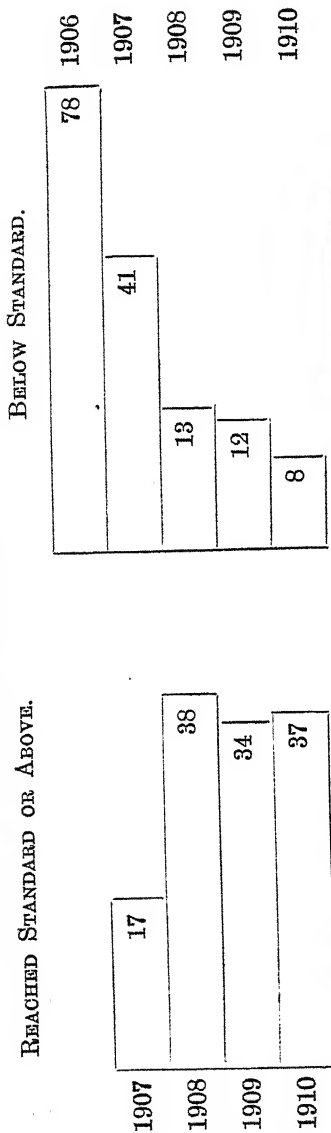
For the four years under survey, the following are the results of the 78 cases reported in 1906 :—

4	discharged.	
23	left = more than half the number on account of marriage.	
2	died.	
4	were made time-workers.	
8	were below standard	} in 1910.
37	reached standard or above	
—		
78		

Similar results were shown with the slow workers reported in subsequent years, but the total number of slow workers has decreased.

It is hardly necessary for the writer to emphasize the lesson taught by these figures,

DIAGRAM SHOWING PROGRESS OF SLOW WORKERS.



It is suggested that care and organization could prevent much of the economic and social waste, the loss of individual character and efficiency, and the consequent misery which sickness and ill-health bring to so many workers. The experience at Bournville is suggestive reading in the light of the provisions of the National Insurance Act, 1911, now in operation. The nation at last seems to be realizing that in this direction, as in others, preventive measures are the cheapest. It is less costly in the end, from all points of view, to keep the worker efficient, than to allow him to deteriorate until he becomes one of the unemployable, a burden at once to himself and to society.

Discipline for Men and Boys.—The system of fines and deductions applied equally to men and to girls, and was abolished in both departments at the same time.

Under the present system the question of punishment and dismissal of men is not in the hands of the foremen, but, as in the case of the girls, is settled by one of the directors. The method, however, of dealing with offenders is not exactly the same.

Each foreman of a department has a small record book, containing the names of every one under his control, in which records of merit and

demerit are entered. These books are sent every Wednesday to the wages office, where they are looked through, and any entries which have been made since the previous Wednesday are entered into a "Summary of Records" Book.

The Committee, appointed to deal with these records, consists of two of the chief foremen. All the records are gone through once a month, with the exception of very serious records, such, for example, as stealing or fighting, which are dealt with at once. The foreman responsible for the entry states his case to the Committee, and the offender is called upon to offer his explanation. Upon the evidence before them the Committee carefully consider the case, and deliver a decision. This naturally varies with the nature of the offence, and may be merely a caution not to repeat the act, or may be a severe reprimand. If, however, the Committee consider it desirable that more serious action should be taken, the matter is referred to a director, who interviews the offender, and deals with the case on its merits, inflicting a punishment of suspension up to two weeks, or in the case of repeated, or of more serious, offences the punishment is dismissal. All the records are taken into account at the annual revision of Time Wages.¹

¹ All men and boys are paid partly on time-rates and partly on piece-rates (see Wages System in Men's Departments, p. 151 *et seq.*).

When it has been decided that a record shall stand against an offender, he is notified of the fact, and informed, also, that if no other record is entered against him within two years, that particular record will be cancelled. Records are in every case entered on the man's card, which contains also a variety of other information regarding him.

When a record is entered against an offender the Committee decide at the same time whether or not the information shall be posted in the Works. Their decision naturally depends upon the nature of the offence. When, however, a record is posted in the Works, the check number only of the offender is given, together with the nature of the offence, and the penalty inflicted. It is believed that the posting in the Works, by giving the result of any particular breach of discipline, has a very salutary effect upon the employees generally.

A list of the records to be cancelled is prepared once a month, and after this has been examined by the Committee, it is placed before a director, who sanctions the cancellations, except in cases, where, in his opinion, the record should be allowed to stand longer on account of its serious nature.

Records of merit are also awarded for

any special action of an employee, and for specially good behaviour, and these are dealt with in a similar manner to the records of offence, being entered in the book, on the worker's card and on the notice. The person concerned is informed of the award, and his merit is also taken into account at the next revision of wages. The merit record is, of course, never cancelled.

In the case of boys, a report is also kept of their progress in the compulsory classes, and the Works classes, a system of rewards, as described in the chapter on Education, having been instituted.

Backward boys are interviewed by a Committee, one of the members of which is the Works doctor, and the Committee make recommendations as to methods of dealing with these boys. Slow boys are also stimulated, by delaying for a time the full increase of wages, this, of course, being notified to them. In some cases the work of the boy is changed, and where inefficiency seems to be the result of physical debility, the boys are brought before the Works doctor.

The following are the record tables for men and boys :—

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Year.	Late Time.	Bad Work.	Bad Conduct.	Total Offences.
1899	49	12	44	105
1900	45	12	73	130
1901	60	11	55	126
1902	83	6	33	122
1903	78	23	42	143
1904	66	—	75	141
1905	35	7	37	79
1906	46	8	29	83
1907	46	22	81	149
1908	98	35	64	197
1909	98	49	73	220
1910	67	28	73	168

Year.	Cautioned.	Suspended.	Discharged.	Trivial Cases.	Total.
1899	91	—	10	4	105
1900	90	—	10	30	130
1901	97	3	26	—	126
1902	107	3	12	—	122
1903	106	3	34	—	143
1904	116	4	21	—	141
1905	65	2	12	—	79
1906	74	4	5	—	83
1907	127	2	20	—	149
1908	175	4	18	—	197
1909	182	27	11	—	220
1910	131	19	18	—	168

Year.	No. Employed. ¹	Percentage Recorded.	Percentage Suspended.	Percentage Discharged.
1899	634	15.93	—	1.56
1900	846	11.82	—	1.18
1901	1,045	12.05	0.29	2.49
1902	1,023	11.92	0.29	1.17
1903	1,079	13.25	0.28	3.15
1904	1,126	12.52	0.36	1.87
1905	1,074	7.35	0.19	1.12
1906	1,115	7.53	0.36	0.45
1907	1,337	11.14	0.15	1.50
1908	1,456	12.02	0.27	1.24
1909	1,523	14.43	1.77	0.72
1910	1,882	8.92	1.01	0.96

¹ These totals are of number employed in the factory, and do not include office staff, travellers, etc.

The success of the scheme, both in the girls' and men's departments, will be noted by the small percentage of those discharged.

CHAPTER IV

PROVISIONS FOR HEALTH AND SAFETY

Doctors.—The first precautions taken at the factory against ill-health, consist in the method of medically examining all applicants for employment. Amongst the young employees, a high standard of educational attainment is required, and this of itself is a means of eliminating a considerable number of weakly children, who, from the fact that they have been unable to attend school regularly, do not reach the standard of educational efficiency set by the Firm. In the case of children who are healthy, but who are somewhat light in weight, or small in stature, care is taken to qualify the medical certificate, by stating the kind of work which is most suitable for them, and these children are not allowed to do weight-lifting. In certain cases, where there is any doubt as to the physical suitability of the employees, they are re-examined at stated periods and their progress watched. It may be stated, however, that these cases generally turn out

well, because of the course of graduated physical exercises which they attend.

As a means of preventing over-fatigue, a light breakfast of cocoa and biscuits is given, free of charge, to the men who come to work before 6 a.m., and to the girls and youths who start work at 7.45 instead of 8.45. Free milk, oat-meal water or lemon water is provided in hot or dusty departments, and there is a drinking-water fountain accessible to every department.

The medical staff at the Works consists of two whole-time medical officers, one being a lady, and both are fully qualified. To assist them in their work, there are four trained nurses, three of whom hold massage certificates. The doctors, when requested by the employees, visit the sick at their homes, whilst the nurses visit, regularly and systematically, employees away from work, no charge being made for the visits either of the doctors or the nurses. When an employee is away from work from any cause, the name is sent down on a slip to the surgery, and given to the nurse in charge of that particular district, and a visit is paid on the same, or the following day. The nurse gives help on the lines of a district nurse, and, from the nature of her training, is at once able to suggest medical aid if necessary, the

employee, of course, being perfectly free either to consult one of the general practitioners of the district, or to call in one of the medical officers from the Works. The nurse reports the employee's condition at the surgery, and to that section of the factory to which he or she belongs.

In the district visiting, the nurses advise and encourage the people in hygienic living, such as fresh air through open windows, diet, etc., and by this means the proper home conditions in relation to illness are taught. The following shows the number of visits paid by the nurses during five years :—

Visits paid in the year ending Nov. 1907	. . . .	3768
" " " " " " 1908	. . . .	5665
" " " " " " 1909	. . . .	4694
" " " " " " 1910	. . . .	5061
" " " " " " 1911	. . . .	6248

In 1911 the three qualified masseuses had 115 massage cases, entailing 874 visits. The cases were made up as follows :—

49 sprains and strains.	1 Flat foot.
32 various injuries.	1 Varicose veins.
7 Constipation.	2 Paralysis.
8 Rheumatism.	1 Poisoned hand.
7 Neuritis.	5 Acne.
2 Synovitis.	

It will be noted from this, that the greater part of the massage work is connected with conditions caused by external injury, in which massage treatment is playing a most important

part. The tendency is to develop this method of treatment, as the results are most satisfactory, injuries being attended to at an early stage, and the progress being such that return to work is expedited. In the other cases mentioned, the success of massage treatment has also been marked, and, to a large extent, in many of these cases has superseded the use of drugs.

Where it is found that patients are unable to have sufficient nourishment, through stress of home circumstances, such, *e.g.* as the father being out of work, the cases are brought before either the Girls' Works Committee, or the Men's Works Committee,¹ and the employee is granted invalid food as prescribed by the doctor. There are many cases, however, which require building up by other methods, and cod-liver oil and malt is given from the surgeries frequently, without payment, with most beneficial results.

The surgeries in the Works are fully equipped and are open from 9 a.m. to 5 p.m., and the employees have free advice throughout these hours. In the workrooms, the foremen and forewomen are encouraged to send to the surgeries any workers who seem to be ailing, even if they are not complaining. The fact that over 23,000

¹ See Chapter on Organization.

² 20,259 in 1910; 23,334 in 1911.

visits are now annually paid to the surgeries shows the amount of effort that is expended in keeping the employees in good health.

A small charge is made for medicines, unless the patient is unable to afford it, when they are supplied free of charge, and, as stated above, large quantities of cod-liver oil and similar strengthening foods are given, without payment, to all cases which require them.

When any employee returns to work after sickness, the recommendations of the factory medical officers, or of the outside doctor, as to his or her care in the factory, are sent to the foreman or forewoman, and the employee's name is registered by the Works doctors, so that the case may be kept under observation. In some cases, it is necessary for those who are not quite up to the mark to have extra food between meals in the morning or afternoon, and arrangements are made whereby these employees receive a certificate from the surgery, stating the food required, and this has to be shown at the Works kitchen.

The names of a few girl employees, who suffer from weak heart, etc., are sent by the doctor to the Girls' Works Committee, and these girls are allowed to leave their workrooms five minutes before the usual time of closing, both at the dinner-hour and in the evening, in order that

they may avoid the rush, which is inevitable when several thousands are leaving work.

It might be well to repeat here, that the inefficient workers are regularly seen by the doctors, who make observations as to their health conditions, and advise them from time to time, with a view to improving their general health, thus helping them to get off the list of slow workers.¹

There is a careful periodical examination of the hands, and this systematic inspection prevents eczematous conditions. It also at once brings to notice any person whose hands are not physically suitable for a particular class of work, and such workers are transferred to other positions.

Cleanliness being such an important aid to health, the facilities for systematic bathing have been a means of reducing the cases of anæmia, which are comparatively few, and are often due to irregularity of dieting, and want of fresh air in the homes. The provision of warmed and dry dressing-rooms, and of snow shoes, etc., is also an aid both to health and cleanliness.

In connection with the surgeries, there is a retiring-room for girls who are temporarily

¹ See Chapter on Discipline, p. 79 *et seq.*

indisposed. An attendant is always present, and those who require treatment are sent by her to one of the doctors.

Convalescent Home.—The Firm's convalescent home for women is situated among the health-giving hills of Herefordshire. In charge of the home are a qualified matron and a nurse, together with the ordinary household staff. There are twenty beds, and the home is solely for the use of the girl workers. Whilst it is also used for convalescents from acute illness, its chief use is to keep those who are not quite up to the mark from breaking down, and so to bring them up to a normal standard of health. The home is wholly supported by the Firm, and medical attendance is free to such cases as require it. The greatest use is made of the open-air loggia, the beds in which are always occupied, so that the fullest advantage is taken of the fresh-air treatment, and the results obtained in anæmic, and other cases, are such as to warrant the conclusion that this mode of treatment is most beneficial. Phthisical cases are not sent to the convalescent home.

Previous to holiday times, those girls whose home conditions would not permit them to take a holiday on account of the expense, and whose

health is such as to be needing fresh air and rest, are sought out by the forewomen, who send in suggested names to the Girls' Works Committee, and these cases are sent to the convalescent home for a period of from fourteen to twenty-one days, at the Firm's expense.

The following shows the length of time girls stayed in the home during the year from December 16, 1909, to December 16, 1910.

1 girl stayed for 3 months		
1	"	2 "
2 girls	"	7 weeks
3	"	6 "
7	"	5 "
43	"	4 "
99	"	3 "
74	"	2 "
2	"	23 days
4	"	12 "
2	"	11 "
2	"	10 "
1 girl	"	8 "
11 girls	"	7 "
5	"	6 "
11	"	5 "
9	"	4 "
5	"	3 "
11	"	2 "
5	"	1 day

The Holiday Party in 1911 numbered thirty-six, and there is no doubt that the privilege is

much appreciated, and the benefit to those who participate is very great.

During the year December, 1910, to December, 1911, 257 girls stayed at the home, and of these, excluding the holiday girls, 145 spent three weeks there, representing 57 per cent. of those sent to the home. Thirty-three girls were there for four weeks, six for five weeks, four for six weeks, three for seven weeks, and one for eleven weeks.

One death only has been recorded at the convalescent home, and this occurred in September, 1911.

The method adopted in regard to the girls who are sent to the home is as follows:—The girl is examined, and a form is filled up giving details as to her physical condition and the necessary treatment. This is sent to the matron. At the same time, her name is entered upon a card, which is retained at the surgery, and all information with regard to the nature of her employment, her length of service, work record, and previous health record, together with her height and weight, the wages she earns, her present condition and the necessary treatment is also noted.

At the Convalescent Home she is carefully watched, and if anything untoward arises, or if

her progress is not satisfactory, she is seen by a local medical man. Any serious case is at once reported to Bournville, and is visited by one of the Works doctors in consultation with the local medical man.

On her return from the home, the girl is again seen by one of the factory medical officers, the matron's remarks as to her progress at the home are noted, and she is re-examined, and an appointment made when she is to see the doctor again. These records are gone over periodically, and the girls are seen and advice is given as to mode of living, or continuance of treatment.

Ambulance Work.—In most departments in the Works there is an Ambulance Box, forty-six in the men's and thirty-four in the girls' departments. These are under the charge of employees who have passed the St. John Ambulance Examinations, and who are continuously keeping up their knowledge, by regular attendance at the ambulance classes held at the factory, from September to March.¹ The Ambulance Boxes are regularly replenished and inspected. The employees in charge are paid for this work, and the duty is looked upon as a

¹ See Chapter on Education of Employees, p. 40.

privilege. The immediate effect of this provision for attendance to minor injuries is, that such injuries are attended to on the spot and at once, and they are afterwards sent to the surgery for treatment. Every case treated is noted by the employee in charge in a book kept in the box, and there is no doubt that this scheme leads to a great saving of pain and sickness, especially in connection with small injuries.

A horse ambulance and a hand ambulance are kept ready for service in case of accidents necessitating hospital treatment.

The senior medical officer stated in his annual report for the year 1910, that the one outstanding feature, was the great increase in the number of persons visiting the surgeries, the chief reason being that a great many who used to put off seeing a doctor were now attended to without losing time from work, and in that way more serious ailments were prevented from developing. He also stated that practically all persons on the sick list, whether under outside practitioners, or the Works medical officers, regularly reported themselves at the surgeries, and that kept the doctors in better touch with what was going on, and was efficacious in various ways, also ensuring that no patient made any attempt to malingering.

The following table gives particulars of the employees under medical treatment at the Works in the years 1909, 1910, and 1911.

	Total for year 1909.	Total for year 1910.	Total for year 1911.	Average per week 1909.	Average per week 1910.	Average per week 1911.
Total number of employees . .	4,896	5,535	5,972	—	—	—
Visits	1,886	1,776	1,672	87	34	33
Consultations . .	12,442	20,259	23,334	239	390	448
Dressings . . .	4,507	7,138	6,041	87	137	116
Medicines . . .	5,968	6,530	9,003	115	126	173
Operations (minor)	4	5	15	—	—	—

	1909.	1910.	1911.
Total number of deaths for year ending Dec. 16 .	14	10	14
Total number of men and boys examined „ .	524	792	666
„ „ girls „ „ .	343	448	710
	<u>867</u>	<u>1240</u>	<u>1376</u>
Total number of accidents (men), moderately severe	0	0	7
„ „ „ severe	3	5	6
„ „ „ slight	155	209	242
	<u>158</u>	<u>214</u>	<u>255</u>
Total number of accidents (girls), moderately severe	0	0	0
„ „ „ severe	0	0	1
„ „ „ slight	54	64	32
	<u>54</u>	<u>64</u>	<u>33</u>

Dentists.—The Works Dental Surgery was opened in February, 1905, and a fully qualified dental surgeon was appointed to devote his whole time to the Firm's workers. It was soon

evident that the best way to make this work effective as a preventive measure was by treating the younger employees. To this end, an "Authorization Scheme" was inaugurated; that is to say, the parents or guardians of all employees under 16 years of age, were asked to sign a paper authorizing the Works dentist to do whatever he considered necessary for the benefit of the boys' and girls' teeth. This dental treatment is gratuitous, and continues for the boys until they reach the age of 21, and for the girls during the whole period of their employment at the Works. The scheme has answered admirably and now forms one of the "conditions of employment." It forms the basis of the whole dental organization in the Works, as it enables the dentists to carry on their work systematically.

The next step in the direction of this preventive work, was the examination of the teeth of all applicants for work under 16 years of age, or the requirement that they should have their teeth attended to, and the rejection of those that did not come up to a certain standard.

A third very important measure which quickly followed, was the presentation by the Firm to each new employee under 16 years of age of a tooth-brush and a tin of tooth-powder,

together with a leaflet on "The Care of the Teeth." These young people are also supplied, free of charge, with brushes and powder whenever they need them, until they reach the age of 16, after which they are expected to pay a nominal price for them. There are also tooth pastes and mouth washes on sale at a price which brings them within easy reach of all workers in the factory. The dentists take every opportunity they can of seeing that the brushes and powder are being properly used by the young employees.

With regard to the presentation of brushes and powder, the Firm has not confined its attention to its own workers, but supplies them to the children attending four large elementary schools in the neighbourhood, from amongst whom they largely draw their employees. The teachers in these schools heartily co-operate with the Firm, and have tooth-brush drill in the classes.

It will be as well to point out the fact that, from a preventive point of view, the work done by the Firm's dentists is not nearly so valuable as it would be if "School Dentistry" was the rule in this country. At present, children present themselves at the age of fourteen with mouths deformed and teeth irregular, through

want of care or attention at an earlier age. Only about 2 per cent. of the children examined for employment have perfect dentitions, leaving 98 per cent. requiring dental treatment; and much of this treatment can be only palliative, owing to the process of decay, and the inevitable loss of teeth, prior to the age of leaving school. Teeth which should have been retained are, for want of treatment, allowed to decay until toothache compels the child to "have them out," and these are often the most important teeth in the dental arch. Temporary teeth, which should have been removed to make way for their permanent successors, are unduly retained; and, above all, the idea of cleanliness is, in many cases, never considered. All these, and many other conditions, would be reduced to a minimum in the mouths for those presenting themselves for factory work, if the school dentist had the children in hand from the age of five years.¹ As it is, the only hope of the dentist is to make the best of a bad job, and endeavour to prevent any further mischief arising.

At the end of the year 1908, owing to the very large amount of work to be covered, two

¹ A scheme of dental school clinics has been approved by the Birmingham City Council under which seven dentists have been appointed, four of whom will give their whole time to the work.

dentists were appointed. These work in two separate, thoroughly equipped surgeries, in the Works, from 9 a.m. to 5 p.m., each assisted by an attendant.

Based on this scheme, the system is as follows:—Applicants for work under sixteen years of age are examined, and particulars of the condition of their teeth are entered in a book. On admission to the Works, they are each given a tooth-brush and powder, and authorization papers are sent to their parents or guardians. The dentists then send for the children as soon after their admission to the Works as possible, and treatment is commenced.

When a child is examined, a chart of the mouth is made out, and any unsaveable teeth and roots are removed under an anæsthetic administered by one of the doctors. As soon as the gums are healed, all cavities in the remaining teeth are treated and filled. The filling materials mostly in use are those classed as “plastic,” although gold and inlays (porcelain and metal) are frequently used. Healthy roots are rendered useful and aseptic by artificial crowns. In a few cases, the regulation of irregular teeth has also been done within the last three years. More recently the Firm has

granted permission to the dentists, in some cases, to insert artificial teeth where they were urgently needed for the maintenance of the boy's or girl's health. These dentures are practically the only items for which any payment is made, the bare cost only being charged.

After the initial treatment, the dentists have a scheme by which any boy or girl can be sent for, and examined, every six months. This system has been in vogue for eighteen months, during which time it has worked well. Any boy or girl who has once been treated, is sure of further treatment if they ask for it, should it become necessary before the time for re-examination. It will be seen, therefore, that the great bulk of the work done by the dentists, is for those who enter the Works with more or less bad teeth.

With regard to the use of the tooth-brush amongst the boys, this is taken note of in the test for physical fitness under the Works apprenticeship scheme. Every applicant for apprenticeship is examined by the dentist, and is awarded marks according to the way in which he keeps his teeth. In this connection, it has to be noted, that the difference is very marked in the prevalence of tooth-brushing, between the present time and six years ago. The

following is a quotation from the Dentist's first "Quarterly Report" in 1905:—

"As regards the general condition of the mouths seen by the dentist, he regrets that, with few exceptions, they were in a most unsatisfactory condition, in some cases as many as twenty fillings being necessary to put the mouth in order. On making inquiries as to whether the patient cleaned his teeth, the answer was often 'No,' in other cases 'Yes,' but in the latter cases, further inquiries revealed the fact that they cleaned their teeth about once a month, and that day was usually Sunday. . . . The neglect of the teeth has been as marked a feature amongst the office boys, as the factory boys."

Again, in his "Annual Report" at the end of the first year (December 31, 1905), he says:—"The condition of the mouths as seen by me as a whole is not good by any means."

It appears from the above that cleanliness of the teeth was the exception, whereas according to the dentists' later reports, it is now the rule.

Hitherto, the work done for the young employees has been dealt with. The work, however, does not end with them. Any employee may apply to the dentists for advice, a certain time

each day being set apart for this, and also for the cure of toothache. For the purpose of extractions, in a very large number of cases nitrous oxide gas is administered by one of the doctors ; in the rest, local anæsthetics are used. Very often mouths are prepared, by the removal of unsaveable teeth and roots, for dentures, which, in the case of the older workers, have to be obtained from an outside dentist.

It is not surprising to note, that the number of cases that have to be away from work for dental troubles has been very materially reduced since this department was opened.

Although no actual figures are available, it is distinctly the opinion of the Works doctors that the health of the employees has improved since the dental department began to make its presence felt. There have been fewer gastric and other troubles which are often directly attributable to bad teeth.

The Works dentists report that " The educational value of the dental department must not be overlooked, for although there are many young patients, who put up with the dentists' treatment, as it were, under compulsion, there are also those who value it, and who pay great attention to their teeth, taking a pride in keeping them spotless, and reporting themselves

whenever they notice the least vestige of decay appearing in them."

The total number of visits to the dental surgeries in 1911 was 6795. 1095 applicants for work, and 88 apprentices (being together 474 more than in the previous year) were examined, and the number of compulsory patients treated was 766.

There is, of course, intimate co-operation between the medical and dental departments. The dentists, by reason of their medical education, and the many opportunities they have of observation, are able to detect many ailments in their initial stages, which have not at that time come under the notice of the doctors, and therefore their department is of great value in the province of preventive medicine and surgery. Cases of enlarged cervical glands, the initial stages of anæmia, goitre, chest complaints, etc., are constantly referred by them to the doctors, so that the preventive work in their particular branch is not the boundary of the dentists' useful work.

Accidents.—According to the report of the Departmental Committee on Accidents, which was published in 1911, the accident risk in factories and workshops remained nearly

constant in the ten years 1897-1907. It has decreased since 1907 owing to improved inspection and the greater care resulting from the Workmen's Compensation Act, and to the experience of employers in the efficient guarding of machinery. The Commissioners regarded the increase of reported accidents up to 1907 as due almost entirely to improvement in reporting. They, however, considered the accident risk still unduly high, and made a number of recommendations with a view to its further reduction.

The annual report of the Chief Inspector of Factories and Workshops for the year 1910 showed that during the twelve months dealt with in that report there had been a general increase in the number of accidents, which most of the inspectors ascribed to improved trade and more employment, while some considered that better reporting still helped to keep up the returns. This general increase in the number of accidents, corresponding with increased volume of manufacture, was continued in 1911.

The number of accidents in 1910 reported to certifying surgeons was 1080 fatal, and 42,714 non-fatal, and the number of accidents reported to inspectors only, was 85,756, making a total of 129,550, which was an increase of 28,941 on

the total number reported in 1905. For 1911 the figures are as follows:—1182 fatal accidents, and 47,819 non-fatal, reported to certifying surgeons, and 99,944 reported to inspectors only, the total being 148,945.

The number of prosecutions in regard to safety in 1910 was 291, upon which there were 265 convictions; and in 1911 there were 297 prosecutions, and 265 convictions under that heading.

Precautions against Accidents.—At Bournville an expert has been appointed, whose business it is to see that all machinery is adequately guarded, in order to prevent accidents. All new machines are also inspected by him, and any extra guards in addition to those provided by the makers, which can be devised, are fitted. It is also part of his duties to inspect systematically the machinery in all departments, the aim in view being to protect machinery with guards that are safe, durable, clean, and light in weight, and this construction is usually followed.

The expert is furnished with all extracts from factory reports, etc., bearing on his work, and he is expected to keep in touch with all the latest technical and general literature

dealing with the prevention of accidents by machinery.

When the necessary guard has been devised, he issues the order for it, and this is countersigned by the engineer, and it is forthwith put in hand. He aims at making the safety devices as automatic as possible, and also, where practicable, arranges for any one operator to control the machines of all the other operators that are run from any particular motor. This safety switch fitted to the motor makes it possible for any operator to control not only his own machine, but he or she has the power to stop all machines under that motor in case of any accident in that section.

The way in which accidents due to the carelessness of the operator are prevented, is illustrated on a rotary printing machine. An accident occurred whilst ink was being cleaned off the rollers, the operator having lifted up a guard on this machine and forgotten to replace it. The guard is now so designed, that it cannot be lifted until the belt is working on the loose pulley, and the machine is therefore out of action. The striking gear is locked by the action of removing the guard, and the machine cannot be set in motion without first replacing the guard. On another machine a simple locking arrangement has been fitted, which

locks the machine against being set in motion by accident or by another operator.

The operators are carefully instructed in respect to the proper fixing of movable guards before the starting of machinery, and also in the use of specially provided tools. It is the business of the expert, after guards have been fixed, to pay surprise visits with a view to discovering any cases of carelessness in their use.

The expert on safety devices also makes reports to the different Committees, such as the Girls' Works Committee and the Men's Works Committee, on matters with which they are concerned, and these Committees forward to him any suggestions which may arise out of their work in respect to the prevention of accidents, or any which come to them through the suggestion scheme. It has been found that the attention given to this matter has educated both foremen and workpeople; and the heads of departments also give great attention to the carrying out of the scheme.

Another example of the way in which accidents are prevented is shown in the case of weight-lifting. It was found that one or two cases of hernia occurred in a certain department where the men had to lift weights, and the matter was carefully inquired into by the Firm's

doctor. As a result of his recommendations, certain selected men are trained and instructed in the proper method of weight-lifting, so that the work is now done without physical detriment to the men, and is actually done more quickly and efficiently. This training is carried out by a gymnastic instructor after consultation with the doctor as to the lines upon which it should be given.

The foremen have an economic self-interest in preventing accidents, as, under the system of departmental costs, the cost of any accident is charged against the department, and therefore this is always an incentive to the foreman to keep them down.

As far as the workpeople are concerned, they can forward their suggestions through the Works Suggestion Scheme, and many suggestions come to the expert in this way. This is one of the best examples of encouraging initiative on the part of the workpeople. In many factories the ordinary workman, although he has to deal with the machine in practice, and should naturally be aware of its defects and liability to cause accidents, is seldom expected to, and rarely does, make any suggestion for its safety or improvement; in fact, the jealousy of the foreman, and the short-sightedness of

the employer, sometimes lead to the man being penalized if he suggests methods of protecting himself or his machine. Through the Suggestion Scheme, however, the workman is encouraged to take the utmost interest in his machine and in his work, and all suggestions, whether for protecting himself or other people, are carefully considered, and any recommendation adopted is rewarded.

When an accident happens, the expert is furnished with a copy of the report of it, and he at once inspects the machine, and makes any recommendation he can devise for preventing its recurrence. The foreman of the department concerned is also always consulted on the matter.

To show the importance of this work in a well-equipped factory, during the year that the expert was first appointed¹ there were 564 requests for guards, varying in importance from minor cases of securing guards to that of guarding dangerous motions of machinery, and about 97 per cent. of these recommendations were adopted.

According to the rules of the Firm every accident, no matter how trivial it may be, and whether it necessitates absence from work or

¹ The expert was appointed in September, 1908.

not, must be immediately reported to the foreman of the department in which it occurs, and it is his duty to notify the circumstances to the Men's Wages Office. Books containing duplicate forms are provided for each foreman or forewoman for this purpose, so that full particulars can be recorded for future guidance and for reference. The form states the department, the name, check number, and age of the injured worker, the date of the accident, time of his commencing work, and time of the accident, how the accident was caused, and how the worker was employed at the time. It also states whether the worker was removed home or to hospital, or if able to continue at work, and the nature of the injury. The foreman signs this form, and adds the date on which the Wages Office is advised. The accidents reported include, of course, those which must be reported under the Notification of Accidents Act, 1906, whether personal injury is caused or not, such as the bursting of revolving wheels, etc.

When the forms are received at the Wages Office, the particulars are examined to see that all details are correct. The accident is then entered into the register of accidents required to be kept in accordance with the Factory and Workshop Act, 1901. In respect to this register,

the Firm is much more particular than the Act demands, as the Act requires an entry to be made of such accidents only where it is necessary that notice should be given to the Factory Inspector, whereas the Firm makes an entry for every accident that occurs. This serves a useful purpose, besides that required for record and statistical purposes, for what may at the time appear to be a trivial accident, such as a slight cut, scratch, or bruise, may develop into a serious condition, such as blood-poisoning, and it is in such cases that the entries become of importance. The accidents which must be notified within a specified period to the Inspector of Factories, and under special conditions to the Certifying Surgeon of the district, are also dealt with by the Wages Office.

The Accidents Committees are sub-committees of the Men's and Girls' Works Committees. The Men's consists of two officials, one of whom is appointed by the Firm, and the other by the Men's Works Committee, two representatives of the workpeople, and the foreman of the department in which the accident may happen. The members hold office for one year, but are eligible for re-election. The attendance of three members is considered a quorum. The Committee investigates every

accident which occurs to an employee, and they have the power to call upon the Works doctor to join their investigation and give them the advantage of his knowledge from a medical point of view. The doctor, however, always attends such meetings when he is present at the Works.

If an accident occurs which necessitates medical treatment, the rule is that the Wages Office, acting as convener of the Committee, calls the members together at once to meet at the spot where the accident has taken place. If the accident has been caused by a part of a machine, or other mechanical apparatus, the particular part is closely and carefully examined to see if any precautions can be taken to prevent a recurrence, and full inquiries are made of the foreman and any witnesses of the accident. The Committee look for the cause of the accident, and make their recommendations accordingly.

If the accidents are of a minor nature, and have merely needed ambulance treatment from the ambulance attendants, they are dealt with once a week, and the Committee meet every Saturday morning for this purpose. The procedure is the same as that adopted for more serious accidents.

Full consideration is given to each case, and the findings of the Committee are recorded on the back of the form upon which the foreman had reported the accident to the Wages Office, the Committee giving their decisions on the following points :—

1. If considered an accident?
2. If caused through negligence?
3. If through machinery—were guards fitted and in order?
4. If any other precautions can be taken?
5. If both payments are recommended?¹
6. If the worker was seen by one of the Works doctors?
7. Special remarks.

Cases frequently arise in which it is very difficult for any one man to decide whether they are really caused by accident or not, or if caused by accident, whether they were preventable or unavoidable, and the experience of the men who comprise the Accidents Committee is of the greatest utility in determining the exact cause of an accident, and in making recommendations

¹ This point may need some explanation. Under the Workmen's Compensation Act, 1906, the Firm is, of course, liable to pay compensation for accidents which occur to its employees, arising in or from their employment. Under the Firm's Sick Benefit Scheme (see Chapter V.) payment is made to employees who are absent through sickness, and it has been the practice of the Firm to allow an injured employee not only the amount of the legal compensation, but also the sick benefit payments. Line No. 5, therefore, refers to this latter payment. If in the opinion of the Accidents Committee the injury has been caused through the wilful neglect of rules, or through personal misconduct or negligence on the part of the injured person, then it is recommended that only accident pay be given.

to avoid a recurrence. The functions of this Committee are essentially for the prevention of accidents.

The Secretary makes out a full report upon each accident, and this, together with the foreman's report, is sent to the Men's Works Committee on the following Monday, for consideration and final decision. From this point the matters are taken up by the Men's Works Committee, and instructions, for the guarding of machinery, and any alterations and provisions considered necessary, are issued by them.

The Firm does not take advantage of the clause in the Workmen's Compensation Act giving them permission to refuse to make any payment in respect of the first week's illness, where the total period does not exceed two weeks, but it pays for accidents as from the first day of absence, at the rate provided for by the Act. In addition, there is a rule in force, that any person who is not absent from work owing to accident for more than three days, shall be paid the full rate of wages. This rule is an advantage both to the Firm and the worker, as it is a direct inducement for the latter to return to work within three days.

The number of accidents at Bournville

compares favourably with the majority of large works. As mentioned above, every accident, however slight or severe, is entered in the register of accidents, and even if a worker had merely a small abrasion of the skin an entry would be made. This must be kept in mind in comparing the Bournville accident statistics with those of other works, where no accidents except those which compel absence from work are recorded.

The following are the number of accidents reported for the years ending June 30th, 1909, 1910, and 1911:—

Year.	Accidents reported.			Accidents causing Absence from Work.							Average days Absence from Work.
	Male.	Female.	Total.	Male.	Female.	Total.	Severe.	Total.	comp. at B'ville.	Per cent. of Acci- dents.	
1909	126	42	168	66 60	22 20	88 80	2 Not away from work.	—	4807	1·83	Males 17·33, Females 16·51.
1910	188	50	238	91 97	32 18	123 115	4 Not away from work.	—	5177	2·37	Males 14·2, Females 11·82.
1911	241	51	292	121 120	33 18	154 138	9 4 moderately severe. Not away from work.	—	5723	2·69	Males 17·0, Females 12·03.

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During the year ending June 30th, 1910, there were 115 accidents recorded which did not necessitate absence from work, as against 80 in the previous year. This increase is largely due to a better method of reporting.

During the year ending June 30th, 1911, there were several cases of prolonged absence, which forced up the cost and average; for example, there were ten cases of accident each away for more than forty days.

The total number of accidents causing absence from work was 123 in 1910 as against 88 in 1909, making an increased percentage of 0·54 on the total number employed at Bournville, and in the year 1911 there was an increase of 31, making an increased percentage of 0·32 on the total number employed.

The number of accidents caused through machinery and hot liquid :—

1909	.	.	32	Machinery	4	Hot liquid.
1910	.	.	34	„	5	„
1911	.	.	42	„	16	„

In respect to the number of severe accidents in 1911, these show an increase on previous years; six of these accidents were cases of hernia, one was a fracture of upper arm caused by a fall, one a dislocation of shoulder caused

by over-reaching, and in one case the accident happened in November, 1910, but the man did not stay away until July, 1911, and the case is therefore included in the accident cost of that year.

The percentage cost of accidents on all wages paid was as follows¹:—

	s.	d.	
1909 . .	1	6	per £100 wages.
1910 . .	1	8	" "
1911 . .	2	1½	" "

Fire Risks.—The works at Bournville cover upwards of thirty-three acres, and are intersected by private roads and railways.

In such a large concern with its numerous workrooms, its warehouses, storerooms, and offices, the risks from fire are very great, and the whole plan is devised with the object of preventing any outbreak of fire and of limiting its extent in case one occurred. The roads are wide and are constructed from east to west, with the main connecting roadway running from north to south; and the more modern

¹ In arriving at these percentages there have been included sums paid to employees who have suffered permanent injury, such sums being a weekly allowance according to registered agreement. Compensation is paid to an injured worker in cases where legally no claim could be made.

buildings have been constructed to allow of easy access in every direction. There are four main entrances to the Works, through which any particular road or workshop can be immediately reached. Most of the connecting bridges and passages between the blocks of buildings are constructed of iron or ferro-concrete. The blocks of buildings are arranged as far apart as practicable, and the more dangerous departments, such as the oil stores, the French polishers' department, etc., are isolated. The warehouses and storehouses are connected by a complete railway system which intersects and runs round the Works, and each storeroom is provided with a suitable loading deck. The buildings are constructed on the best fire-resisting principles, and as soon as an improvement is introduced, it is tested and, if satisfactory, is adopted. The following may be mentioned as an example of the tests made. It was proposed to use a fire-resisting wood in the erection of a new block of buildings, and an interesting experiment was carried out with the object of testing the qualities of this wood. It was claimed by the makers that any wood treated with their preparation would not blaze or burn, but would simply char at the point of contact with fire. The experiment consisted of a case being

made of samples of deal, mahogany and pitch-pine, with the fire-resisting wood used for the frame and covered with ordinary deal boarding. The inside of the case was filled with shavings, which were ignited and which burnt fiercely for twenty minutes. Upon examination, it was found that the whole of the ordinary wood had burnt away, but that the framing was left intact, and no flame or smoke issued from the fire-resisting wood. It was therefore decided that the wood fulfilled the claims of the makers, and it was accordingly adopted.

The floors of nearly all the rooms are made of ferro-concrete, supported by ferro-concrete encased stanchions, and by this means any outbreak of fire would probably be restricted to the room in which it occurred. Steel principals are now used in the construction of the roofs, and in most of the modern buildings non-flammable wood is used. Each department is provided with fireproof doors, and the construction of these is altered from time to time as new types are brought forward and satisfactorily tested. Those now in general use are made of 2-in. timber cased on both sides with asbestos or uralite, and covered with tinplate built up in panels, without either screws or nails.

The materials stored are of an inflammable nature. The large quantities of cocoa, sugar, flour, timber, and paper, incur a very considerable risk, and this is largely increased by the necessary supplies of oil, printing materials, petrol, etc. The stock-room, erected in 1907, is a large rectangular building, three storeys in height, with each floor divided into six equal sections. It is entirely built of brick, steel, and ferro-concrete. The doors dividing each section, and also the doors of the lifts and the stairways connecting the various floors, are all fireproof, and fireproof shutters are drawn over the outside of every window when the building is closed. By this arrangement, each of the eighteen sections is for all practical purposes a separate building, having no communication with any other section in case of fire.

In the storage of materials an adequate passage is made between each stack, and a good margin of space is also left between the goods and the heating apparatus and pipes, very careful attention being given to this matter.

The power gas plant, which produces gas for three Westinghouse engines, involves more than the ordinary risk from gas explosions, etc., and the electric generating station and the electric system generally are great fire-producing

agencies, as outbreaks of fire in other places have recently proved. The wood-casing, the switchboards, the distribution boxes, and the motors with their liability of sparking, make the problem a most important one to the management, and all these matters have the care which their risks demand. The generating stations are isolated, and the whole is kept under constant scrutiny. The overhead cables supplying the power to the departments are kept clear of all buildings. The distribution fuse boxes, by which the current is conveyed from the mains to the various departments, are made of cast-iron with glass fronts. These are well insulated and protected, and only a safe resistance is allowed on the fuses, so that no short circuit is made. Conduit casing is now also largely adopted, and every precaution is taken to prevent an outbreak.

To avoid an accumulation of dust all the passages in the Works are carefully swept. Men are employed during each holiday to sweep down all beams and girders, and to clean down carefully everything that cannot be reached while the machinery is in motion. Mechanical dust collectors are installed in the more dusty departments, and every care is exercised to obviate any risk in this direction. Special

receptacles for all waste paper and rubbish are placed in every room, and iron boxes with lids are provided for oily rags, waste, and other inflammable material. All these receptacles are emptied each day immediately on the closing of the Works, and the contents are removed to the destructor to be sorted and, if useless, destroyed. In cases of spontaneous combustion the iron boxes have proved very effective.

Safety matches only are allowed in the Works, and these are provided by the Firm. Smoking is not allowed in any department, but smoke-rooms are provided for use at meal times.

It will thus be seen that as much attention is given to the prevention of fire as to combating an outbreak should one occur, for with 6000 workers, composed of girls, men, and boys, the responsibility of ensuring a perfect condition of safety is very great.

The risk of fire always exists, however, even with the greatest of care and foresight; and no mechanical device is so perfect, and no arrangement so complete, that it is possible to dispense with the co-operation of the work-people. This fact has been recognized, and a special monetary inducement is given to the head of each department, in order to encourage

freedom from fire in the departments, and to ensure great care in the stacking and arrangement of the goods, and the keeping all combustible material and waste under special supervision.

The most important precaution taken is the factory patrol by the members of the Works Fire Brigade. Two members of the brigade are appointed each week to patrol daily all the rooms after the employees have left their departments. Their duties are as follows :—

(1) To see that everything is left in due order, for it is almost invariably found that fires occur in large factories directly after work is discontinued.

(2) To clear away any inflammable material that may have been carelessly left about.

(3) To remove obstructions that prevent easy access to the fire appliances.

(4) To see that all fireproof doors and shutters are closed.

This inspection is made more effective by an additional patrol of two of the auxiliary firemen, who confine their attention solely to the saw-mills and woodbox departments. These rounds occupy an hour and a half each day, after work hours, and have proved most valuable.

A quarterly inspection is also arranged, and

in this all the firemen engage. Dividing off in pairs they thoroughly inspect all crevices, subways, roofs, and every conceivable place where it is possible for combustible matter to accumulate. The result of this inspection is reported, and any trivial thing that the firemen consider might possibly cause a fire is thus brought to light and remedied. It is only by close and careful attention to the smallest detail, and by recognizing the possibility of fire from neglect of minor details, and reducing the risk to a minimum in every department, that immunity from fire is obtained.

Another important precaution, is the attendance of two or more firemen whenever any great number of people are present at the various social meetings held in the Works dining-room. It frequently happens at the Works concerts and other social functions that from 1000 to 2000 people assemble, many of whom are not acquainted with the exits from the Works, though these are plainly indicated, and the presence of the firemen is advisable, though happily there has never been any call for their services.

Equipment in Case of Fire.—Although the preventive measures are given the first place in dealing with risks from fire, adequate

arrangements are also made in case of fire, and the Firm has recognized the importance of organizing a thoroughly well-manned and fully equipped brigade.

The brigade is composed of a captain, two lieutenants, and eighteen firemen, together with eight auxiliary firemen. The members have to be efficient for this special duty, and every member must reside within a short distance of the Works. The most important qualification is physical fitness, and the men selected for the post of firemen are periodically examined by the Works doctor.

To maintain the necessary standard of efficiency, the brigade is very carefully and strictly drilled in the handling of appliances and in ladder climbing, etc. The drills are held in the recreation ground, or some other open-air place in the summer, and in the winter they are held in the various departments in rotation, thus giving the men a complete knowledge of the whole of the works, and keeping them in touch with the position of all fire appliances, and the best way of getting to work in any room. The auxiliary firemen and all the watchmen are also regularly drilled.

A monthly payment is made to the members of the brigade for attendance at practices, an

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annual present is also given to each member, and a further allowance is made quarterly towards house rent. The auxiliary firemen and the watchmen are also paid for attendance at drills.

The duties consist in a ready response to all fire calls, attendance at the fire drills and at the weekly patrol of Works mentioned above. All drills and practices take place after work hours, a fixed night being generally observed, but the officers whenever they think fit may call the men out.

The brigade is kept in a state of readiness by occasional surprise calls and false alarms. If the call is in the daytime, a long blast on the steam whistle calls the firemen together at the central station, close to the Works. If the call is at night, the lodge-keeper instantly switches on the alarm bells which are connected with the houses of all the firemen. The room from which the alarm has been made is shown by a painted sign, which is placed in a prominent position, and the firemen immediately proceed to the spot with the apparatus required.

An easily accessible electric push-button connected with the lodge is placed in almost every department of the Works. This is clearly marked by a red board, on which the words

"Fire Alarm," with a large hand indicating the position, are painted in white letters. The push releases a small shutter on the indicator in the central lodge, and starts a bell ringing, showing at once the department in which the fire has broken out. The central lodge is occupied day and night.

In the rooms where there is a greater danger of fire, in addition to these alarm bells, there is installed the May-Oatway system of fire alarms by which, if the temperature of the room is at any time suddenly raised, the expansion of a piece of copper wire makes an electric contact, and automatically gives an alarm at the central lodge. These, as well as the ordinary alarms, are tested every evening by a member of the electrical staff, in order to ensure that there is no defect in the system.

There is also an electric gong, which is operated from the same place as the firemen's calls, and which will call up to the fire station any one engaged in the Works during the night. This has been found a very useful means of calling up the watchmen and night stokers without creating an alarm in the district, which the steam whistle would do. The tests of the firemen also keep the lodge-keeper in touch with his duties, so that in case of an actual outbreak of

fire there would be no delay. The network of bells all ringing at the central lodge, forms an important part of the equipment.

The appliances for combating an outbreak of fire include two steamers of 300 and 400 gallons capacity per minute respectively, a manual engine, and hose carts for conveying extra hose and appliances to the different departments of the Works. These, together with the stand-pipes, branches, keys, smoke helmets, and other necessary apparatus, are kept at the fire station. The firemen's dressing-room adjoins the station.

The necessary supply of water is arranged for as follows:—The brook running through the Works provides water for the main tank and the inside system of fire valves. This water is pumped by electric pumps to the main tank, above the roof level, which is kept full, and would prove equal to putting out a medium outbreak. In addition to the connection with the tank, the mains are arranged to run the whole length of each block, so that a fairly equable pressure is obtained in all parts of the Works. The brook is also provided with sump holes to collect the water for the steamer or manual. Eleven fixed steam pumps, each equal to sending a good stream of water over the

highest building, are also kept under steam, and these are tested nearly every practice night.

A second and independent supply is obtained from the City of Birmingham Water Department, by means of an 8-inch main, which supplies upwards of thirty hydrants in the various streets of the Works at a pressure of 140 lbs. per square inch. This system is tested by the brigade, accompanied by the City water inspector, each half year, to see that everything is in proper order.

Provision is made for minor outbreaks by upwards of 170 tanks, containing seven to ten buckets full of water, which are distributed all over the Works; and in addition to this there are upwards of 140 fire buckets, in groups of three and four, hung in positions to be readily used. They are kept filled, and receive special attention from the heads of departments and from the patrol firemen. Wherever necessary a hand-pump is placed, to be used in conjunction with the bucket tanks and fire buckets. Chemical extinguishers and special apparatus of this class are provided for the electric system, and rubber gloves to handle the cables are placed, in cases, in convenient positions. Sand buckets and sand tanks are provided for special use where oil or other inflammable liquid is used, and these are

always placed in an unobstructed position. At every fire valve or hydrant, either inside or outside the Works, a box is fixed containing a hose and branch pipe, and in the outside boxes there is, in addition, a stand pipe and a key. Eighty-three of these boxes are provided, and are placed in close proximity to the hydrants, and in this manner about 140 lengths of hose, comprising 10,500 feet, are distributed all over the Works.

The local brigades, in turn, periodically pay a visit to the factory, when a test of the hydrants surrounding the more dangerous departments is made, and these brigades are thus kept in touch with the general construction of the Works.

Exit Drill for Workpeople.—One other important provision is essential. In case of an alarm of fire during work hours the employees should know how to act, and for this purpose occasional emergency drills are arranged, by which the employees are instructed how to leave their departments quickly and in an orderly manner, and to stand in their allotted positions outside, without any confusion. Special emergency exits and staircases are provided for this purpose, and the employees take up positions of safety, giving the firemen liberty to get to work. Notices are posted up inside and outside the departments, giving explicit directions what

course of action the employees should take in case of an outbreak. Iron ladders are built for access to the roofs of the buildings, and roof walks are arranged, making it possible to get almost from one end of the Works to the other over the roofs of the buildings.

Since the establishment of the Works at Bournville no very serious outbreak of fire has occurred, and this is doubtless due to the preventive measures that are continuously in operation to minimize the possibility of fire, and to extinguish it if it should occur. It is considered that the freedom from fire that has so far been enjoyed, has resulted more from the importance that has been placed upon detail, and upon keeping the whole arrangement up-to-date and in a constant state of preparedness, than from any actual experience of the capabilities of combating serious fires; the brigade, however, secures some experience from outside calls, as it is allowed to turn out to any outbreak in the locality. The proficiency of the brigade has already begun to be recognized in the Midland district, and successes have been obtained in local competitions since it became affiliated to the National Fire Brigades Union some five or six years ago.

CHAPTER V

METHODS OF REMUNERATION

Wages in Girls' Departments.—Several factors have to be taken into account in considering methods of remuneration and rates of wages. A manufacturer working under modern industrial conditions must obtain an adequate return for the wages paid, a return which will enable him successfully to meet his competitors, and to place his goods on the market at approximately the same price as they do, and yet receive a fair margin of profit. On the other hand, the wage of the employee must be adequate. There should be an inducement to the employee to make the maximum of effort, and yet this inducement should not lead to overstrain. Some form of piece-work is the best method of obtaining these ends, and although it must be admitted that piece-work is open to abuse, this abuse can, under a rational system and proper conditions, to a large extent, be avoided. One of the greatest

abuses of piece-work is to select the fastest worker, and expect all the others to speed up to that standard. In this connection it must be noted, however, that it often happens that one worker does more than another, not because of any natural quickness or aptitude, but because of a better method of doing the work. In this case the best method should be chosen as a standard, and the others taught to follow it. Apart from the advantage of increased output, it sometimes happens that the better method operates in the direction of relieving the strain on the piece-worker. After a good deal of experience with thousands of piece-workers it has been found that from 5 to 10 per cent. have a natural gift for speed, and will always earn about 20 per cent. above the average, upon whatever process they are engaged. These workers pay the employers best, and should be encouraged, and an enlightened employer will never grudge them the extra money they earn. Again, about the same percentage are slower than the rest; their case is dealt with in the chapter on Discipline.

The first thing to do is to fix an adequate minimum wage, this minimum taking account of the age of the worker. The best unit is pence per hour. When this unit is fixed the

average number of operations per minute or per hour, as carried on by the worker who uses the best method, should be ascertained, and a theoretical piece-rate worked out based upon these. The actual rate fixed should be based on the earnings of the average workers, and in no case on the earnings of the fastest, or the slowest, worker. If the process is new, an allowance of from 20 to 100 per cent. will have to be made for the first few weeks, this being gradually decreased until the basis rate is reached. The ideal to aim at is such a thorough system of investigating methods and time of doing work, that alterations of piece-rates should not take place except at long intervals, or when the process is changed.

Piece-workers should always be able to earn higher wages than time-workers, as they will make more effort, and this effort should undoubtedly receive its reward from an economic, as well as an ethical, standpoint. Piece-work not only means more effort, but it also means more thought and interest in the work on the part of the worker. If properly trained, the worker will try to find the quickest method of work, and the one involving the least strain; and it has been found that when a piece-rate has been fixed, where previously there had been

a time basis, the output has doubled without any undue strain on the part of the worker, largely as the result of adopting better methods. This especially applies to hand processes.

Certain processes cannot be worked on individual piece-rates, because the output depends on the combined efforts of a group of workers, the work of each being dependent on that of the others. Such groups are paid on the share system, the number of shares for each worker being based on age, experience, and responsibility. This, however, does not work so well, or so fairly, as the individual piece-rate system, slower or less energetic workers tending to absorb some of the earnings of the faster and more energetic ones. For allotting the shares, schedules are fixed giving the number which a girl is entitled to receive for each year of age from 13¹ to 21, also for each year of service from one to eight. These schedules are used in the following manner :—

Suppose the schedule for age to be :—

13 ¹ to 14 years	4 shares
14 to 15 „	6 „
15 to 16 „	8 „
16 to 17 „	10 „

and so on ;

¹ No girls are now taken on under the age of 14.

And the tables for service :—

To end of first year	4 shares
„ „ second year	6 „
„ „ third year	8 „
„ „ fourth year	10 „

and so on.

Take three cases of girls joining groups :—

- A. joins at beginning of service age $13\frac{1}{2}$ years.
 B. „ „ „ „ „ $16\frac{1}{2}$ „
 C. „ $3\frac{1}{2}$ years after entering Firm's service, age when joining group $16\frac{1}{2}$ years.

The shares to be paid to these girls when joining the group would be as follows :—

	Age Shares.	Service Shares.	Shares (Mean of Age and Service).
A.	4	4	4
B.	10	4	7
C.	10	10	10

Note that B. and C. are the same age, but C. has $3\frac{1}{2}$ years' service to her credit, while B. is a new girl.

The tables for age and service are arranged so that an older girl, engaged for group work, shall not receive less than the minimum wage fixed by the Firm.

Shares are revised each year at a date midway between the date of birth and date of commencement of service, until the maximum number of shares is reached.

Another method is to give a bonus on the

¹ No girls are now taken on under the age of 14.

output of a department, this being divided into shares. This gives an inducement to the employees to keep the number of workers in the department down, as any increase in the number of employees diminishes each individual share, by increasing the number of shares. The wages of a department paid on this system would work out in the proportion of 75 per cent. time-wages and 25 per cent. bonus.

Time-wages are of two kinds, a day wage and a staff wage. A day wage is paid on the actual hours worked, short time being deducted and overtime added. A staff wage is a monthly salary, short time not being deducted and no overtime being paid. Heads of departments are usually paid a staff wage; it prevents unnecessary overtime being worked, and also gives a sense of greater stability than a fluctuating wage. An interest on the output of the department supplies the necessary stimulus.

The table given below shows the wages per hour paid in the girls' departments in the first and the second quarters of 1912; the totals include the time-workers and the girl workers in the Offices, as well as the girl employees in the manufacturing departments. The method employed in the table is a calculation of the *median*, the *quartiles* and the *dispersion*.

This method¹ is as follows: The wages, for example, of the 3447 girl employees in the first quarter of 1912 are arranged in ascending order, that is from $\cdot 80d.$ to $9\cdot 66d.$ per hour. Then the wage half-way up the list is the *median* wage, which is $4\cdot 49d.$ per hour, and there are as many individuals above the *median* as below it. The wages half-way from the *median* to each end of the scale respectively (that is, 861 and 2584) are the *quartiles*, so that between the *quartiles* half the wages are grouped. The *median* and *quartiles* in the tables are—lowest *quartile* $3\cdot 00d.$, *median* $4\cdot 49d.$, highest *quartile* $5\cdot 67d.$ per hour, and there are 861 girls earning less than $3\cdot 00d.$, 861 girls earning more than $5\cdot 67d.$, 1723 earning between $3\cdot 00d.$ and $5\cdot 67d.$ per hour, and 1723 earning below, and 1723 above, $4\cdot 49d.$ per hour. In this method the grouping of the wages about their *median*, i.e. the distance between it and the *quartiles* is to be noted. In this table the distance between the lowest *quartile* and the *median* is $1\cdot 49d.$ and the distance between the *median* and the highest *quartile* is $1\cdot 18d.$ per hour. For the purpose of describing these distances of the members of a group from their average, and from each other, a general

¹ For a more detailed explanation of this method, see Bowley's *Elements of Statistics*, second edition, p. 124.

method is adopted by which half the distance between the *quartiles* is expressed as a fraction of the mean or average of the *quartiles*. This measurement is called the *dispersion*. The fraction increases when the ratio of the upper to the lower *quartile* increases, and it lies between 0 and 1.¹ In the table given, half the distance between the *quartiles* is 1·33*d.*, and the mean or average of the *quartiles* is 4·33*d.* Therefore the dispersion is ·31.

Year.	No. of Girls.	Wages per hour.		Quartiles.				Median.			Dispersion.	
1912.		Lowest.	Highest.	Lowest.	No. below.	Highest.	No. above.	Mean.	Per hour.	No. below.		No. above.
First quarter }	3447	d.	d.	d.		d.		d.	d.			
		0·80	9·06	3·00	861	5·67	861	4·33	4·40	1723	1723	0·31
Second quarter }	3477	0·81	11·86	3·00	869	5·77	869	4·38	4·57	1738	1738	0·31

The lowest wage, ·80*d.* per hour in the first quarter, and ·81*d.* in the second quarter, is the time-wage paid for a short time to learners in one department. The number of girls under 18 years of age whose wage is included in the above table is 1250 for the first quarter, and 1232 for the second quarter. All the girls below the lowest *quartile*, *i.e.* below 3*d.* per hour, are under 18 years of age, while 389 in the first quarter,

¹ See Bowley's *Elements of Statistics*, second edition, p. 136.

and 363 in the second quarter, under 18 years of age, are earning more than 3*d.* per hour. The weekly wages for a 42 and 48 hours' week respectively, are as follows:—

FIRST QUARTER.

	42 hours.	48 hours.
	s. d.	s. d.
The lowest <i>quartile</i>	= 10 6	12 0
The <i>median</i>	= 15 8·58	17 11·52
The highest <i>quartile</i>	= 19 10·14	22 8·16
The highest wages	= 33 9·72	38 7·68

SECOND QUARTER.

	42 hours.	48 hours.
	s. d.	s. d.
The lowest <i>quartile</i>	= 10 6	12 0
The <i>median</i>	= 15 11·94	18 3·36
The highest <i>quartile</i>	= 20 2·34	23 0·96
The highest wages	= 41 6·12	47 5·28

Hours of Work and Holidays.—The working hours for forewomen, girls in the Offices, and time-workers are 42 per week,¹ being seven hours and forty minutes on five days, and three hours and forty minutes on Saturday. Work begins each morning at 8.50 and ends on Saturday at 12.30 and on the other five days at 5.30 p.m.

The holidays allowed for time-workers are twenty-one days during the year at the usual holiday seasons. At Christmas the holiday is

¹ Many departments at the present time are working more than 42 hours, owing to pressure. In no case, however, do the hours for girls exceed 48, even for a short time.

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four full days and one Saturday; at Easter two full days and one Saturday; at Whitsuntide one full day; and at Midsummer ten full days and two Saturdays. Payment of wages is made to the time-workers during these periods.

In the case of new girl time-workers the following is the scale of holidays:—

Midsummer.

Less than 3 months' service	3 days.
Over 3 and less than 6 months' service	{ 5 full days and 1 Saturday.
„ 6 „ 9 „	{ 8 full days and 1 Saturday.
„ 9 months' service	Full time.

Christmas.

Less than 3 months' service	2 days.
Over 3 and less than 6 months' service	3 days.
„ 6 „ 9 „	4 days.
„ 9 months' service	Full time.

During the summer months, eight half-day holidays are given and paid for, in addition to those set out above, and girls are not required to make up this time. New girls are entitled to half-days as follows:—

Under 3 months' service	2 half-days.
Over 3 and less than 6 months' service	4 „
„ 6 „ 9 „	6 „
„ 9 months' service	8 „

All holidays in excess of these are recorded, and the girls have to make an equivalent number of hours' overtime, if required, without payment.

This overtime is by no means always made up, and each year is treated on its own basis, no debit or credit being taken from one year to another. Any time allowed for lunch or tea by doctors' orders, or time taken by leaving work early, or any extra half-day's holiday, is added to the total of special holidays which have to be made up by overtime work if required. After this "special holidays'" time is made up all overtime is paid for.

If any girls are employed during the Works holidays, they are paid at the ordinary rate, and must take an equivalent in time off during the year. If a girl on leaving the employment of the Firm has not received her proportionate share of the twenty-one days' holiday, she is paid at her time-rate per hour for the holiday she was entitled to. Forewomen are granted extra holidays for long service. As regards the workers on the piece-rate system, in addition to the usual Bank holidays, the Works are closed for ten days in the summer and about five days at Christmas.

In the Stock Office and other departments where the hours worked are of necessity later than those of the rest of the factory, the normal working hours and wages are re-arranged proportionately, the worker being allowed longer

dinner-time or later arrival at work. Great care is taken at Bournville to prevent overtime under any circumstances, but especially, as stated previously, it is not allowed to interfere with the educational needs of the younger people, and such interference is non-existent.

WAGES SYSTEM IN MEN'S DEPARTMENTS.

In order to understand the method of remuneration adopted in these departments it will perhaps be better to consider the matter from the earliest stage, the time when a boy enters the Works. It was stated in the chapter dealing with the selection of employees that most of these are engaged on leaving school or very soon after. The wage for girls and boys is based primarily upon age at the time they are taken on at the Works. The scale for boys is graduated in quarters—14, $14\frac{1}{4}$, $14\frac{1}{2}$, and so on—up to the age of 21, when it rises in half-years to 23. After the age of 23 the next increase of wages is at the age of 24, when the minimum wage paid to adult men is reached. Trade union rates of wages are paid as a minimum, and for unskilled trades the minimum is 26s. per week at the age of 24.

Wages are revised in March and September

of each year. In March there is a general revision, but in September the revision is mainly for those employees who are under 23 years of age, above that age special cases only are considered at that time. The scale applies to all boys and youths, with the exception of apprentices, up to the age of 21.

The general scale for boys and youths up to the age of 21 is as follows :—

Age.	(1) For those who will probably earn less than 30s. a week when they are men.	(2) For those who will earn from 30s. to 35s. (inclusive).	(3) For those who will earn 36s. or more.
	s. d.	s. d.	s. d.
14	6 6	—	—
14½	7 6	—	—
15	8 6	—	—
15½	9 6	—	—
16	11 0	10 0	9 0
16½	12 0	11 0	10 0
17	13 6	12 6	11 6
17½	14 6	13 6	12 6
18	16 0	14 0	13 0
18½	17 0	15 0	14 0
19	18 0	16 0	15 0
19½	19 0	17 0	16 0
20	20 0	18 0	17 0
20½	21 0	19 0	18 0
21	22 0	—	—

The apprentices to trades have special scales of payment, as shown in columns (2) and (3) of above table, varying according to the ultimate weekly wage they should be able to earn.

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The higher the ultimate wage the less is the apprenticeship wage, and *vice versa*. At the age of 21 the lad has completed his course of training, and for the next two years, except when this would be against trade union rules, he is looked upon as an "improver"; but commencing at the age of 21 the wage is increased by half-yearly amounts, so that at the age of 23 he will be receiving the minimum rate recognized as the standard by the union or by the best employers. After that time his wage depends entirely upon himself; it will be based upon his value to the Firm.

All boys, Offices included, come under column (1) of above table until they are sixteen years of age.

It has already been stated that a wages revision is effected every half-year. About January and July printed sheets are sent out to the head of each department, containing the name of every individual under his charge. There are ruled columns on these sheets, and against each man's name the foreman must report in the following manner:—

1. *General Work* . The actual work on which employee is usually engaged.
2. *Special Work* . Any special work of which the employee is capable, and which he undertakes outside his usual occupation.

- | | |
|--|---|
| 3. <i>Value to Firm
as a Work-
man</i> } | Here is stated the suitability of the employee for the work on which he is engaged, as follows :— |
| | <i>Very good.</i> Should apply only to those of exceptional merit. |
| | <i>Good</i> . . Average value for work. |
| | <i>Fair</i> . . Not quite up to average. |
| | <i>Indifferent</i> Rather poor workman. |
| | <i>Bad</i> . . Bad workman, probably not worth keeping any longer. |
| 4. <i>General Conduct</i> | Similar remarks as applied to "Value to Firm," but with reference to "Conduct." |
| 5. <i>Remarks</i> . . . | This column is for making recommendations, or for reporting anything special that the Firm should know. |

On completion these sheets are returned to the Wages Office, where the particulars are transferred to each man's entry in the books, in which are also entered information as to age, service, wages, average net wages per week, scale, if any, time, and other records of merit or demerit, as the case may be.

Revision of wages up to 18 years of age is carried on by a committee of three, in conjunction with the foremen who are thoroughly acquainted with the individuals. Every boy comes before the Committee at its March meeting, and where needed, or advisable, words of encouragement or counsel are given.

During the week in which wages are revised, a note is sent to the parents or guardians of every lad under the age of 18, informing them

that from a certain date the wages of the boy will be increased to a certain sum per week. In case of a part only of the increase due being given, as mentioned below, a letter is sent to the parent or guardian telling him of this fact. Every lad is himself advised of his increase by means of a ticket which is placed in his wages tin when his wages are next paid.

The scale is not absolutely rigid nor adhered to in every case. It is considered as a standard, and where special ability or industry is shown, an amount over and above the scale is given; conversely, where circumstances warrant, a part of the rise is withheld for a time.¹ In the latter case, however, a list is prepared giving all particulars, and the reasons for the amount being withheld, and this is submitted to a director for his confirmation or amendment. This applies to all revision by the Committee.

From eighteen years of age up to twenty-four, when the minimum wage is reached, revision is effected by a committee of two (who are also on the junior committee), acting in conjunction with the foreman. A similar procedure is followed. All those whose wage is above the minimum are considered every March, the special cases only being revised in September,

¹ See also Chapter on Discipline, p. 89.

as before stated, and if considered worthy of an advance, recommendations to this effect are made to a director, who decides whether it shall or shall not be given. Every employee has perfect liberty to ask for an advance, or to apply for reconsideration on the ground of the inadequacy of the rise given, or to appeal against its being withheld, and all these applications and appeals are looked into and given full consideration by a director.

Most of the men in the cocoa and chocolate manufacturing departments are paid partly on piece-work, and for these, as for all other employees, a minimum wage is estimated, which it is considered the average workman ought to earn; this is called the *normal wage*. The majority work in groups; a comparatively small number, such as packers and casemakers, are on individual work. In order to minimize the fluctuation of wages when any revision of rates takes place, the system of piece-work is so arranged as to cover anything from $33\frac{1}{3}$ to 50 per cent. of the total wages, the balance of the fixed normal wage being a time-rate. The total piece wage for groups is divided according to a share list. Shares are allotted to each worker according to his normal wage. For example, suppose that in a group the normal wages are as follows:—

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	s.	d.	
A.	37	6	per week.
B.	28	0	"
C.	25	0	"
D.	23	0	"
E.	22	0	"
F.	16	0	"
G.	11	0	"
H.	8	0	"

The piece-work equals 50 per cent. of the normal wage, and the value of each share is four shillings. The shares would, therefore, be allotted as follows:—

	50 per cent. of Normal Wage.	Shares.	
		Number.	Value.
A.	s. d. 18 9	4 $\frac{3}{4}$	s. d. 19 0
B.	14 0	3 $\frac{1}{2}$	14 0
C.	12 6	3 $\frac{1}{4}$	13 0
D.	11 6	3	12 0
E.	11 0	2 $\frac{3}{4}$	11 0
F.	8 0	2	8 0
G.	5 6	1 $\frac{1}{2}$	6 0
H.	4 0	1	4 0
		21 $\frac{3}{4}$	87 0

Nothing less than quarter shares are paid. The total number of shares, therefore, is $21\frac{3}{4}$ and the value 87s. per week, and piece-rates are arranged which, with average effort and efficiency on the part of the workers, are estimated to produce this amount.

The time-rate in each case is the difference

between the normal value of the shares and the full normal wage, thus:—

	Normal Wage.		Value of Shares.		Time Rate.	
	s.	d.	s.	d.	s.	d.
A.	37	6	19	0	18	6
B.	28	0	14	0	14	0
C.	25	0	13	0	12	0

and so on.

Before rates can be fixed, it is necessary for careful observation and calculation to be made, in order that the anticipated amount at least shall be realized.

New boys and men, since they are unaccustomed to the work when put into a department, are paid the whole of their wages for the first week, quite independently of the share list, the work done being credited with the rest for the benefit of the others in the department. After the first week they are allotted a certain number of shares, and allowances are made to the share books of 50 per cent. of their wages for the first two weeks and 25 per cent. for the second two weeks, after which time they are upon the share scheme at their full share value, according to the method already explained. It is an accepted principle that the number of boys employed under sixteen years of age shall not exceed 10 per cent. of the whole, that is to say, more lads

shall not be employed than can be provided with work as they become older. When vacancies occur, or men are required, those lads who are already employed have the preference as far as possible, and are given the first trial to see if they are suitable for the particular work for which the vacancy occurs. If found satisfactory, they are permanently transferred, and others are promoted to take their former places. Wages are, of course, adjusted in every case to meet the new circumstances.

Where a trade union is representative of a particular branch of work, it has been the practice to comply with its rules as regards rates of pay, hours of work, etc., but the minimum rate fixed by the union is not adhered to as a maximum, as in many instances men are paid above the union rate, the latter being accepted only as a basis of valuation for the workmen ; if they are worth more they get more. For example, in one large department the minimum fixed by the Firm is a shilling per week above the trade union minimum, and this is for a week of 48 hours against the trade union 53 hours.

One or two trade unions will not at present recognize piece-work at all, and even where they do, it is demanded that the minimum shall be guaranteed. This latter principle has been

recognized. In such cases the men in charge of machinery are given a bonus or commission on the work or output of their department, and it will at once be seen how materially they can affect its output, particularly in the case of a breakdown; and it is not only a question of repairing breakdowns, but also, and mainly, of keeping the machines from breaking down. By giving the men an interest in the output of their departments, their bonus naturally depends upon the maintenance of the highest possible efficiency in the machinery, and this calls for their constant watchful care.

The foremen take a personal interest in the men in their departments, and are interested in their welfare. Foremen are in nearly every case paid a fixed time-rate, and, in addition, a commission. In computing their remuneration, output and costs of production are in some cases taken into account, the whole amount being paid monthly. The importance of this point is in the fact that whenever the revision of the scheme of a shop is in preparation, involving alterations or improvements in machinery for giving increased output, or a change in the class or method of work, or in the constitution of the set comprising the schemes, the foreman must be consulted, and

any objections or points raised by him are noted on the draft scheme when it is placed before the Firm for consideration and decision.

Owing to the large number of employees it takes a day or two to make up the wages books and pay the workers. For the purpose of payment, time and work are calculated to Tuesday night in each week, and payment is made on the following Friday afternoon. This applies all through the Works, both in the manufacturing and trades departments.

In connection with this subject, it may be of interest to mention that the Firm makes a special effort to comply with the Particulars Clauses of the Factory and Workshop Act, 1901. These clauses were made compulsory as regards the Chocolate and Confectionery trades, by an Order dated Nov. 15, 1909, which took effect on Jan. 1, 1910, but the requirements laid down therein were in a large measure actually in operation at the Works many years before.

Hours of Work and Holidays.—The working hours on the men's side are regulated by the requirements of each department, the normal hours being forty-eight per week. All late time is recorded, and lost time is stopped in proportion to wages. Overtime is worked at the discretion of the directors. Overtime passes are issued

by the foremen, and no one is allowed on the premises before or after stated hours, without special permission. In addition to the usual Bank Holidays the Works are closed for five days at Christmas, and ten days at end of July and beginning of August.

Holiday Scheme for Men and Boys.—

The Firm makes a gift before the annual summer holiday to all men and boys, the object being to enable them to derive the greatest benefit from the holiday, by getting away to the seaside or the country, which is always a difficult matter when the worker has to face a week's loss of wages.

Previously to 1909 the Firm for some time had under consideration this question of the employees' annual holidays, in order that they might enable the employees to make the best use of them, and in that year a scheme was started, by which all those who had been in their employ regularly for one year and upwards should have a gift in the form of payment of wages during holidays, varying, according to length of service, from three days to one week or longer. To stimulate good time, the gift was made subject to deductions for late time, but also subject to extension in cases of marked punctuality.

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A scale was drawn up for that year, but this has since been revised, and the following is the scheme which was adopted for 1911.

For 1 year's continuous service . . . Wages for 3 working days' holiday.

„ 3 years'	„ . . . „	6 „ „
„ 5 „	„ . . . „	7 „ „

And one extra day for every additional 5 years' service.

The maximum allowed is twelve days' holiday, plus a bonus day when the worker is entitled to it.

The scale of allowance is as follows :—

	Maximum allowance for full Holiday.	Holiday deducted for each Time late beyond the Number allowed.	Extra Gift of One Day.
Starting at 5 a.m. or before	16 lates	1 day	If only 3 lates
Starting after 5 and up to 6 a.m.	12 „	1 „	„ 2 „
Starting after 6 and up to 7 a.m.	8 „	2 days	„ 1 late
Starting after 7 and up to 8 a.m., also for night shifts . . .	4 „	3 „	If clear book

The disqualifications are for late time and serious records. The period of calculation, except for serious records, is from March to March in each year. The employee must notify to the Firm the same day absence from any cause, and if no explanation is sent, that fact is taken into account when considering the

question of disqualifications. All late and absent time is taken into account in the following way:—

$\frac{1}{4}$	day counts	2	lates	} as at 6 a.m.
$\frac{1}{2}$	"	"	3	
1	"	"	4	

Employees are required to take the number of days' holiday to which they are entitled under the scheme; and all those who have forfeited holiday payment, or part of it, are still required to be away the full number of days to which they were originally entitled.

The scheme, which is administered by a Committee of three, appointed by the Men's Works Committee from amongst its members, has now been in operation for three years, and appears to have met with the entire approval of all concerned: judging from the large number who have taken advantage of the Summer Excursions it has evidently proved beneficial. There has been a marked increase in the number of employees who have qualified themselves for the bonus day, as a consequence of extra good time-keeping and absence of records.

Notices are sent to the employees informing them of the number of days' holiday with wages to which they are entitled, and the amount of the gift which will be made to them; this

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payment is always made before the holiday is taken. Territorials, and other employees who have joined any branch of the Service, are allowed to take their holiday at the time needed for training, and work is found for them during the period of the general holiday when all the manufacturing departments are closed.

The following shows the result of the scheme for the past three years :—

	1909.	1910.	1911.
Received the full holiday and also the Bonus day for good time record }	per cent. 48·1	per cent. 60·7	per cent. 67·2
Received the full holiday but no Bonus day }	40·8	32·8	28·2
Forfeited part of the holiday for late time and serious records }	5·0	3·8	2·8
Forfeited all holiday for late time and serious records }	6·1	2·7	1·8

The scheme has been most effective in establishing punctuality throughout the Works. The above figures do not adequately convey the great improvement which has taken place in time-keeping and records, as the earlier scheme (1909) allowed :—

15	lates—starting at 6 a.m.
10	” ” 7 ”
5	” ” 8 ”

to entitle the worker to the full holiday, whereas the present scheme allows only 12

lates, 8 lates, and 4 lates respectively at those times.

If any one entitled to a holiday gift leaves the service of the Firm after March 31, the case is brought before the Committee for consideration, and if the reason of leaving is satisfactory, payment of the holiday gift is made. The Firm reserves the right to withhold payment on the employee leaving when it is considered that the circumstances justify that action, but this right is very rarely exercised.

PENSION SCHEMES.

Men's Pension Fund.—The Pension Scheme for men was inaugurated in 1906. The scheme was drawn up by two eminent London actuaries who have had great experience in pension funds, and every care was taken to make it financially sound. It is founded for the male employees only, who in 1911 numbered 2735, the female workers being dealt with by the Firm in a separate scheme.

The fund is a contributory one, the Firm and the members making equal contributions. The management of the fund is under a Trust Deed, and is in the hands of seven Trustees, four of whom are elected by the Firm, two by the

workpeople, and one by the Office and Travelling Staff. The trustees elected by the employees must have been in the Firm's service at least ten years, and must also be subscribers to the fund. A prominent Birmingham citizen, and a well-known trade-union secretary, respectively represent the Firm and the employees as arbitrators, the latter being appointed by the unanimous request of the workpeople. The deed makes provision for a full actuarial investigation of the fund every five years, and an annual audit by a chartered accountant. The investments are confined to first-class securities, with a provision that no investment may be made in the business of the company. The members may withdraw their contributions with compound interest, but the Firm may not under any circumstance withdraw its contributions, which are applied in all cases to pension benefits only. The contributions of the Firm may thus be said to work out approximately at twice those of the members.

Any male employee of between 16 and 50 years of age may become a member, and each member pays a contribution varying from $2\frac{1}{2}$ per cent. to $5\frac{1}{2}$ per cent. of his wages, according to his age at the time of entry, and in accordance with the contribution scale. This scale was compiled by the actuaries, who were supplied

with the fullest particulars of wages, ages of employees, length of service, and the number of employees leaving for any reason, etc., for a number of years before the scheme was established, so that the scale might be drawn up to ensure the absolute soundness of the fund, as well as the best return to the pensioner.

The following is the scale of contribution in respect of wages up to £250 per annum :—

Age at Entry.	Contributions per cent. of Wages.	Age at Entry.	Contributions per cent. of Wages.
16 and under 18	2·5 per cent.	35	4·0 per cent.
18 " 20	2·6 "	36	4·1 "
20 " 22	2·7 "	37	4·2 "
22 " 24	2·8 "	38	4·3 "
24 " 26	2·9 "	39	4·4 "
25 " 27	3·0 "	40	4·5 "
26 " 28	3·1 "	41	4·6 "
27 " 29	3·2 "	42	4·7 "
28 " 30	3·3 "	43	4·8 "
29 " 31	3·4 "	44	4·9 "
30 " 32	3·5 "	45	5·0 "
31 " 33	3·6 "	46	5·1 "
32 " 34	3·7 "	47	5·2 "
33 " 35	3·8 "	48	5·3 "
34 " 36	3·9 "	49	5·4 "

No subscriber who receives a salary in excess of £250 a year is entitled to contribute in respect of such excess without the consent of the Firm, but the Firm is at liberty to consent to contributions upon the excess or a part of it; and the following is the scale of

contributions upon salaries exceeding £250 per annum :—

In respect of the first £50 in excess of £250 :

- (1) A percentage equal to (a) that payable by the subscriber in respect of his wages up to £250 per annum, plus (b) an additional one-half per cent.

In respect of the second £50 in excess of £250 :

- (2) A percentage equal to (1) above mentioned, plus an additional half per cent.

In respect of the third £50 in excess of £250 :

- (3) A percentage equal to (2) above mentioned, plus an additional half per cent.

In respect of the fourth £50 in excess of £250 :

- (4) A percentage equal to (3) above mentioned, plus an additional half per cent.

In respect of the fifth £50 in excess of £250 :

- (5) A percentage equal to (4) above mentioned, plus an additional half per cent.

In respect of the sixth £50 in excess of £250 :

- (6) A percentage equal to (5) above mentioned, plus an additional half per cent.

Provided that the maximum percentage contribution in respect of wages in excess of £250 per annum shall be $5\frac{1}{2}$ per cent.

At the beginning of the scheme it was arranged that those above 50 years of age could also enter; and in order to meet the difficulty of dealing with the past service of employees, the Firm made a gift to the pension fund of £60,000 to put the matter on a sound financial basis, and to cover the contributions of past years, and the interest which such contributions would have produced. This gift will more than cover the

whole amount required for putting back all employees, of two years' service and upwards, one-half of their service.

The pension age is fixed at 60, which is an earlier age than in most of the schemes of other well-known industrial concerns. If the pension age had been extended to 65, the pension would be nearly double the amount at present granted, as investigation shows that the additional subscriptions received from the Firm and the employees during the further five years, with the interest on those contributions, and the amount now paid out in pensions remaining in the scheme, with the interest on that amount, would greatly increase the fund, while the expectation of life at 65 is correspondingly reduced. In spite, however, of the attraction of larger pensions, the age of 60 was decided upon, and, in consequence, there is no doubt that the fund benefits a far larger number.

If, however, a worker is in good health at the age of 60, and prefers to continue his occupation, he is permitted to do so, but no subscriber is entitled to a pension whilst in the employment of the Firm. In the event of a subscriber being incapacitated before the age of 60, if he has been a member for at least ten years, and if he is over the age of 30, he may be pensioned

at the time of his incapacity at an adjusted rate of pension.

The pension payable to subscribers is one per cent. of the average wages of the subscriber, multiplied by the number of years in respect of which he has paid contributions, with the addition of any profit that the fund produces. For example, excluding such profits, a man earning £100 a year would receive a pension of £30 per annum for 30 years' service, and £40 for 40 years' service. A member may, if he desires, have his pension converted into a lesser one for the joint lives of himself and his wife, but such an arrangement must be made not less than five years before the pension age, and in this case the payment of the pension is continued to the death of the survivor.

If any subscriber is a member of a trade or friendly society which provides pensions for its members, at his request his contribution to the Works Pension Fund may be reduced by the amount of his contribution to the other society, but the Firm in such an event pays its full contribution to the pension fund, as if the employee were paying his whole contribution into the Firm's fund. The pension benefit is then based on the full contribution of the Firm and the reduced contribution of the

employee. A similar privilege is also extended to the present employees who have taken out an endowment insurance policy, conditional that at maturity it is converted into an annuity.

This pension scheme fulfils the double advantage of a savings bank and an insurance policy. As a savings bank, the savings of the employee accumulate with compound interest at the rate of $2\frac{1}{2}$ per cent., and in case he leaves the Firm's service for any cause his contributions and the interest on them are paid over to him, in many cases this being a great help in giving a start in a new business, or assistance in emigration, etc. As an insurance policy, the scheme pays the accumulated contributions of the subscriber with compound interest to his widow, or representatives, if he dies while in the service of the Firm. This is in addition to the funeral benefit which is always given by the Firm in such a case. If a pensioner dies before receiving in pension benefit the whole of his own contributions with compound interest, the sum remaining is paid to his representatives. In every case, therefore, either the member himself, or his representative in the case of his death, gets back the contributions he paid with the addition of $2\frac{1}{2}$ per cent. compound interest, and if he reaches pension age he may

BOURNVILLE WORKS PENSION FUND (MEN).

REVENUE ACCOUNT for the year ending 16th December, 1911.

GENERAL FUND.

Cr.

Dr.

	£	s.	d.	£	s.	d.
To Amount of Funds at commencement of year.	129,627	1	84	By Payments from Back Service Gift under Rule 29	80	0 7
Current Contributions—				„ Withdrawals on account of death	4 7 9½	
Subscribers	8741	13	5	„ Interest thereon	725	6 5
Cadbury Bros. Ltd.	8775	1	5	„ Withdrawals on account of leaving employ	33	8 1
				„ Interest thereon	843 2 10½	
Transfers from Suspense Fund—					104	13 0
Subscribers	200	16	11	„ Pensions		
Cadbury Bros. Ltd.	200	16	11	„ Amount written off Investments to Market Values as at 16 Dec., 1911	6428	13 7
				Less Amount standing to credit of Dividends and Interest Adjustment Account 1141 6 1	5285	7 6
Interest and Dividends from Investments	4616	3	6	„ Cost of Brokerage and Stamps on Investments made to 16 Dec., 1911, written off	551	3 7
Bank Interest	144	3	10	„ Professional Charges	166	0 0
Bank Interest transferred from Suspense Fund	9	6	5	„ Printing, Postages, and Sundries	65	18 5
Brokerage Fees refunded				„ Amount of Funds at end of year	145,120	14 7½
Sundry receipts					£152,330	9 84
	£152,330	9	84			

SUSPENSE FUND.

	£	s.	d.	£	s.	d.
To Amount of Funds at commencement of year.	531	6	94	By Withdrawals—		
Current Contributions—				Subscribers	223	15 2
Subscribers	270	19	5	Cadbury Bros. Ltd.	223	15 2
Cadbury Bros. Ltd.	270	19	5	„ Interest thereon	3	5 8
	541	18	10			
Bank Interest	11	0	8	„ Transfers to General Fund—		
				Subscribers' Contributions	200	16 11
				Cadbury Bros. Ltd.	200	16 11
				„ Interest thereon	9	6 5
				„ Cheque book	411	0 3
				„ Amount of Funds at end of year	222	5 0½
					£1084	6 34

BALANCE SHEET, 16th December, 1911.

LIABILITIES.			ASSETS.		
£	s.	d.	£	s.	d.
To Accumulated Funds—			By Investments at Market Value December 16, 1911—		
General Fund	145,120	14 7½	BRITISH GOVERNMENT AND MUNICIPAL STOCKS—		
Suspense Fund	222	5 0½	£12,300 British Government Guaranteed 2½% Stock	9391	11 3
			£3000 Leicester Corporation 3½% Stock	2831	7 6
Pensions accrued due	145,842	19 8	£3000 Cardiff Corporation 3½% Stock	2857	14 2
" Professional Charges, outstanding	4	10 3	£5000 Sheffield Corporation 3½% Stock	4940	0 8
" Printing Account, outstanding	165	10 6			20,050 13 7
" Interest paid in advance	111	5 11	BRITISH RAILWAYS—		
			£8000 Midland Railway Co. 2½% Preferred Converted Ordinary Stock	4807	6 8
			£7000 Great Western Railway Co. 5% Preference Stock	9027	18 8
					14,435 5 4
			SUNDRY BRITISH INVESTMENTS—		
			£6000 Birmingham Canal 4% Guaranteed Stock	6069	0 0
			£5000 Mersey Docks & Harbour Board 3½% Debenture Stock	4456	9 2
			£5000 Port of London 3% "A" Stock	3830	12 6
			£2303 South Staffordshire Water Works Co. 5% Preference Stock	2986	17 8
			£5000 Gas Light and Coke Co. 4% Preference Stock	5095	0 0
					22,437 19 4
			COLONIAL INVESTMENTS—		
			£5000 New Zealand Government 3½% Inscribed Stock	4756	9 2
			£5000 New Zealand Government 4% Inscribed Stock	5203	0 10
					9959 10 0

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£5000 Victorian Government 4% Inscribed Stock	6486 12 6
£1400 Canadian Government 4% Bonds	1494 17 6
£3000 Canadian Government 3½% Bonds	3000 12 0
£10,000 Canadian Pacific Railway Co. 4% Preference Stock	9915 0 0
£2200 Grand Trunk Railway Co. of Canada 5% Debenture Stock	2743 2 6
£2400 Grand Trunk Pacific Railway Co. of Canada 1% Debenture Bonds	1880 1 8
£10,000 Canadian Northern Ontario Railway Co. 3½% Debenture Stock	8737 18 4
£2000 British Columbia Electric Railway Co. 4½% New Debenture Stock	2037 1 8
£5000 East India Railway Co. 3½% Debenture Stock	30,417 13 8
	<hr/>
	4648 2 6
	<hr/>
	108,388 16 11
By Amount advanced on 1st Mortgage on Freehold and Leasehold Property	27,850 0 0
„ Loan on Reversionary Interest	2000 0 0
„ Dividends and Interest accrued due	1983 10 11
„ Cash : General Fund—	
At Bank	5150 11 1
In Hand	20 1 4½
	<hr/>
	5170 12 5½
Suspense Fund—	
At Bank	213 9 7
In Hand	8 15 5½
	<hr/>
	222 5 0½
	<hr/>
	5392 17 0
	<hr/>
	£145,615 5 4

I have examined the foregoing Accounts and Balance Sheet with the Books and Vouchers and certify the same to be in agreement therewith. I have also inspected the Certificates and other Documents of Title in connection with the Investments and compared the balances at the Bankers with their Certificates and have found the same to be in order. For purposes of security two of the Mortgages are to be reduced in amount and arrangements for the necessary requirements in this respect have been entered into.

WHITEHALL CHAMBERS, 23 COLMORE ROW, BIRMINGHAM, 13th May, 1912.
(Signed) ARTHUR CHAPMAN,
Chartered Accountant.

reasonably expect to get this amount twice or three times over.

The yearly contribution to the fund by the Firm at the present time is £9000, and practically every male worker subscribes.

For the employees in the Building Trades Department, whose employment may be of a temporary character, a Suspense Account has been opened, and on the engagement of these employees they are allowed to become members of the pension fund, but in the event of their leaving the service of the Firm before the end of two years, the contributions of the Firm on their behalf, with interest, are returned to the Firm. In the case of men in the general fund, however, as mentioned above, the contributions of the Firm are not returnable in any event.

The accumulated funds at the end of 1911 amounted to £145,120 14s. 7½*d.* in the General Fund, and £222 5s. 0½*d.* in the Suspense Fund.

A clause is inserted in the Trust Deed giving an option of revising and adjusting the scheme in the event of any national system of old age pensions being introduced, but so far no action has been found necessary under this clause.

A copy of the 1911 Account and Balance Sheet is given on pages 173, 174, and 175.

The first quinquennial report of the actuaries shows that the total liability of the fund is £308,532; the value of the contributions from the members and the Firm is £264,240, leaving a net liability of £44,292. Against this the fund has £145,121 in hand, leaving a surplus of £100,829 to be dealt with. Thus it will be seen that the rates of benefit and contribution as originally put forward included a substantial margin for safety, and it will now be possible to give further advantages to the employees, either by reducing contributions, or giving added benefits. For example, to increase the pension from 1 per cent. to $1\frac{1}{4}$ per cent. of total salary on which contributions have been paid, would cost about £50,000. The question, however, of dealing with the surplus the trustees will consider at an early date.

WOMEN'S SAVINGS AND PENSION FUND.

When the formation of the Men's Pension Fund was under consideration, it was hoped that the women employees could be included therein, but owing to the great disparity between the period of service of men and women, due to the fact that girls leave to be married at an average age of 25 years, this was found to be impracticable. The great difference between

women's and men's average length of service made it impossible to include them in one scheme which would be just to both. The matter was not lost sight of, however, and for four years the Firm gave careful consideration to the subject, consulting the best authorities, and ultimately a scheme was formed to meet the case of the women. This was submitted to the forewomen and representative employees, who unanimously approved it.

The scheme, which was inaugurated in June, 1911, is worked under a Trust Deed, in the same way as the men's, with seven Trustees, four of whom are appointed by the Firm, one by members belonging to Office Staff, forewomen, and time-workers, and the other two by the rest of the members. The trustees appointed by the members may be either men or women, but if women, they must be employees and members of the Fund.

All girl and women employees of 15 years of age and over, except any whose employment is only partial or temporary, are eligible for membership. The contributions of members are as follows :—

Age of Subscriber.	Contribution.
Before the completion of age 18 . . .	6d. per week.
After age 18 and before age 21 . . .	9d. "
" 21	1s. "

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The following is the scale of contributions for all higher-waged employees, *i.e.* those earning 25s. per week and over, who may prefer to pay a larger contribution than the above, subject to the consent of the Firm :—

Weekly Earnings of Subscriber.				Contribution.	
s.	s.			s.	d.
25 and under 30		. . . .	1	3	per week.
30	40	. . . .	1	6	"
40	50	. . . .	1	9	"
50	60	. . . .	2	0	"
60	70	. . . .	2	3	"
70	80	. . . .	2	6	"
80	90	. . . .	2	9	"
90 and over		. . . .	3	0	"

In the event of a subscriber's earnings being reduced on account of increasing age, the trustees may, on her application, in their sole discretion, allow her contributions to be reduced or to cease; and in the event of a subscriber being absent from her employment on account of sickness, her contribution is paid out of the money payable to her from the Works Benefit Scheme for sick employees, but after two such payments, if she is so desirous, she may fill up a claim of exemption form, when contributions would cease until her return to work. In this case at the end of her service she would lose the amount of contributions unpaid and all accumulations and interest on the same. If she is absent from

employment for any other cause, and for the time being not in receipt of wages, on her return to work she must pay double contributions until all arrears are fully paid.

The contribution of the Firm is in the form of additions to the interest earned by the Fund ; it is governed by the amount earned, and is from about $3\frac{1}{4}$ per cent. to $3\frac{3}{4}$ per cent. on the total accumulation of the Fund, in addition to any interest earned.

Whenever a member of the Fund leaves the service of the Firm, whether to be married or for any other reason, she is paid the whole of her own contributions, together with compound interest at the rate of 5 per cent. per annum. In the event of a member dying whilst in the service of the Firm, these sums are payable to her representatives. It will be noticed that the interest given is twice that given by the Post Office Savings Bank, so that the Fund forms an excellent savings bank. For example, supposing a girl becomes a member on attaining 15 years of age, her account in the books of the Fund would stand as in the table on the opposite page at ages given.

It will be seen that whilst at first the interest is small, it very rapidly accumulates in comparison with the contributions paid.

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	Contributions.			Interest.			Total.		
	£	s.	d.	£	s.	d.	£	s.	d.
At age 20	7	16	0	0	16	0	8	12	0
" 25	20	3	0	4	13	0	24	16	0
" 30	33	3	0	13	3	0	46	6	0
" 35	46	3	0	27	14	0	73	17	0
" 40	59	3	0	49	19	0	109	2	0
" 45	72	3	0	82	2	0	154	5	0
" 50	85	3	0	126	17	0	212	0	0
" 55	98	3	0	187	16	0	285	19	0
" 60	111	3	0	269	9	0	380	12	0

Any member staying in the service of the Firm. until she is 50 years of age, may, on the date of her retirement, as she shall choose, take out the whole of her contributions, with compound interest at the rate of 5 per cent. per annum, or instead may have a pension granted to her. Assuming she is 50 when she retires, this pension would be at the rate of £1 12s. 6d. per annum for every £10 of accumulations of contributions and interest standing to her credit in the Fund; if retiring at 55, it would be £1 13s. 9d. for every £10; if retiring at 60, it would be £1 15s. for every £10. For example, supposing a girl entered the Fund on attaining the age of 15, and paid her contribution according to scale, the following will show what she herself has paid, the interest that has accumulated, the total of both, and what her pension would be if she elected to have this—

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Age.	Contributions.			Interest.			Total.			Pension per year = about per week.					
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
At age 50	85	3	0	126	17	0	212	0	0	34	9	0	0	13	3
55	98	3	0	187	16	0	285	19	0	48	4	10	0	18	6
60	111	3	0	269	9	0	380	12	0	66	12	0	1	5	7

The scale has been fixed by the actuaries, who will make a valuation of the fund every five years.

If the member desires to obtain the benefit of the Government Old Age Pension, it is possible to arrange that a little larger pension than the above should be given until she is 70 years of age, with a lesser one after that age.

If the above totals were expended in the purchase of Government Annuities they would only produce :—

	Per year.			About per week.		
	£	s.	d.	£	s.	d.
At age 50. . . .	12	15	7	0	4	11
55. . . .	19	8	1	0	7	6
60. . . .	29	16	10	0	11	6

The pension is payable until death, when a final payment of £6 is paid for funeral expenses. After this payment, as in Government Annuities, all liability ceases. To allow of any payment to relatives in the event of early death of

pensioner, would mean a smaller pension ; but it is felt that it is better that the full benefit should be given to members themselves. It will be seen that the pension is a very attractive one for those starting early and continuing until old age. Experience will show whether in the future it will be possible to increase the annuity.

Many of the present employees of the Firm have been a considerable period in its services, and to meet their case the Firm is giving a back service donation, which it is estimated will amount to £10,000, sufficient to provide the following benefits :—

For each completed year's service after 15 years of age, to the date of the trust deed :—

5s. for the year between the age of 15 and 16.			
6s.	"	"	16 " 17.
7s.	"	"	17 " 18.
8s.	"	"	18 " 19.
9s.	"	"	19 " 20.
10s.	"	"	20 " 21.
11s.	"	"	21 " 22.
12s.	"	"	22 " 23.
13s.	"	"	23 " 24.
14s.	"	"	24 " 25.
15s. for each year after the subscriber has attained the age of 25.			

The rate applicable to be that of the nearest half-year.

That is to say : if a girl commenced her

service before she was 15 years of age, and she is now 20, her share of this gift would be £1 15s.; if 25 her share would be £4 15s.; if 30 her share would be £8 10s.; and so on, adding 15s. for every additional year's past service. This amount is at once placed to her credit in the Fund, and compound interest at the rate of 5 per cent. per annum is added to it, the whole being paid out to her on leaving for any reason, or to her representatives at her death, exactly as her own contributions and the interest thereon would be paid. In the event of her continuing in the service of the Firm until 50 or over, and accepting an annuity, it would be treated in the same way as her own contributions and interest.

For employees earning 25s. per week and over and taking advantage of the higher contribution scale previously stated, the back service gift would be the same as above up to age of 25; but after that age, for every completed year's service, based on the average earnings of 1910, this gift would be according to the following scale:—

WEEKLY EARNINGS OF SUBSCRIBERS.

Over 25s. and under 26s.	. . .	16s. 0d. per year	} The rate applicable to that of the nearest half-year.
" 26s.	" 27s.	. . . 16s. 6d.	
" 27s.	" 28s.	. . . 17s. 0d.	
" 28s.	" 29s.	. . . 17s. 6d.	
" 29s.	" 30s.	. . . 18s. 0d.	

and so on, increasing 6*d.* per annum for every 1*s.* higher wages per week, until a maximum of 100*s.* per week is attained, when the amount placed to her credit would be 53*s.* 6*d.* per annum for each completed year's service after the age of 25.

The majority of the women employees leave to get married, and in the creation of this Fund special consideration has been given to this, more particularly as the Firm now discontinues the marriage gifts which had hitherto been given.¹ A present of £1 is, however, still given to each girl leaving to be married. Employees of long standing start with the proportion of the back service donation due to them, and this accumulates with interest in the same way as their own contributions, and far exceeds the amount of the previous marriage gifts. From the first payment of a new member, all entries of contributions and interest go to form a quickly increasing savings or marriage fund, to be withdrawn on leaving, whether to be married or for any other reason.

Practically all the women workers eligible

¹ It was formerly the custom to give to girls leaving to be married a gift in money value according to the length of time the girl had been in the Firm's service. The total number of such gifts in the last seven years was 856, and the cost to the Firm for the same period was £2339. The average age at marriage is about 25 years.

to join the Fund have taken advantage of the opportunity to do so, and much appreciation has been expressed.

The diagrams at the end of the book show the accumulation of contribution and interest under the Firm's scheme, with a comparison of this scheme and that of the Post Office Saving's Bank.

The Firm's workpeople (both men and women) have the first claim to vacancies in the Bournville Almshouses founded and endowed by the late Mr. Richard Cadbury, a reference to which is made in the Appendix.

BENEFIT SCHEME FOR SICK EMPLOYEES.

The benefit scheme for sick employees, which was re-organized and made non-contributory in January, 1903, is an arrangement of the Firm for providing sick pay for workpeople when absent through ill-health, or when compelled to absent themselves from work owing to an outbreak of an infectious disease in their homes or lodgings. It also provides funeral donations in cases of death.

The scheme is managed by a secretary and a Committee consisting of the Works doctors, dentists, nurses, and a representative from the

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Wages Office, together with two foremen and three forewomen elected by the foremen and forewomen for a term of two years. Any foreman or forewoman having served that term is not eligible for re-election until a further two years have elapsed. The Committee meets once a month, or oftener if required.

The scale of allowances for women and girls according to the rules is as follows :—

Age.	Sick Allowance.	Funeral Donation.
	s. d.	£
Under 15 years' . . .	3 0 per week	3
15 years and under 17	4 6 "	4
17 " " " 19	6 0 "	5
19 " " " over	9 0 "	6

The scale of allowances for men and boys according to the rules is as follows :—

Age.	Sick Allowance.	Funeral Donation.
	s. d.	£
Under 15 years. . . .	3 0 per week	3
15 years and under 17	4 6 "	4
17 " " " 19	6 0 "	5
19 " " " 23	9 0 "	6
23 " " " over	12 0 "	8

The funeral donation in case of the death of an employee's wife is £4.

No allowance is paid for less than three days' sickness, except in the case of the girl time-

workers, who receive sick pay for the first two days without a medical certificate, but should the absence be prolonged beyond this, a doctor's certificate must be obtained, signed from the first day of absence from work. All workpeople who have been for one month in the employment of the Firm, are eligible to receive sick allowance. In the case of absence through infectious disease at home or in their lodgings, workers receive allowances irrespective of their length of service.

No employee is entitled to receive more than twelve weeks' full sick benefit, and twelve weeks' half benefit, in twelve successive months, and the full benefit does not exceed half the average weekly wages, except in the case of absence through infectious disease, when an allowance is made equal to double the ordinary scale, provided the average weekly wages are not thereby exceeded.

For foremen and forewomen, girl time-workers, employees in the Offices, checkweighers and store clerks, there are special scales of payment during sickness for a certain number of weeks, after which period these employees would receive sick pay for the remainder of their illness, up to twenty-four weeks, in accordance with the scale set out above. In the case of foremen and

forewomen the period of payment of the special scales, can be extended at the discretion of the Men's Works Committee or the Girls' Works Committee respectively.

These special scales are as follows:—

In the Offices in case of sickness full and half-wage is given to girls for nine weeks, according to the length of service of the worker, from two weeks' full wage and seven weeks' half-wage to seven weeks' full wage and two weeks' half-wage, but no girl worker in the Offices receives more than nine weeks' special sick pay in one year unless specially authorized by the Girls' Works Committee. After the nine weeks' special pay they would in the ordinary course, as stated above, receive sick pay according to the general scale for the remainder of their illness up to twenty-four weeks. A medical certificate is required if the worker is away for more than two days through illness, and if she is sent to a convalescent home at the Firm's expense she only receives half sick pay while away. The junior girl clerks under 18 years of age are put on time-workers' scales for sick pay after three months' service.

Forewomen "A" receive pay for twelve weeks, according to length of service, from two weeks' full wage, and ten weeks' three-quarter

wage, up to twelve weeks' full wage; and forewomen "B" receive from two weeks' full wage, and ten weeks' half-wage up to twelve weeks' full wage.

Time-workers receive seven weeks' special sick pay from one week full, and six weeks' half-wage, up to six weeks' full wage, and one week half-wage, according to length of service, afterwards receiving sick pay according to the general scale.

The following table shows the details of the special rates of pay to girls and women during sickness:—

Forewomen "A." ¹	Full Wage.	Three-quarter Wage.
Under 9 years' service . .	2 weeks	10 weeks
9 to 12 " " . .	4 "	8 "
12 " 15 " " . .	6 "	6 "
15 " 18 " " . .	8 "	4 "
18 " 21 " " . .	10 "	2 "
21 and over	12 "	—

Forewomen "B." ¹	Full Wage.	Half Wage.
Under 9 years' service . .	2 weeks	10 weeks
9 to 12 " " . .	4 "	8 "
12 " 15 " " . .	6 "	6 "
15 " 18 " " . .	8 "	4 "
18 " 21 " " . .	10 "	2 "
21 and over	12 "	—

¹ In the case of the continued illness of forewomen a report is sent to the Girls' Works Committee, and they would be granted a further

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Offices. ¹	Full Wage.	Half Wage.
Under 9 years' service . .	2 weeks	7 weeks
9 to 12 " " . .	3 "	6 "
12 " 15 " " . .	4 "	5 "
15 " 18 " " . .	5 "	4 "
18 " 21 " " . .	6 "	3 "
21 and over	7 "	2 "

Time-workers. ¹	Full Wage.	Half Wage.
Under 4 years' service . .	1 week	6 weeks
4 to 8 " " . .	2 weeks	5 "
8 " 12 " " . .	3 "	4 "
12 " 16 " " . .	4 "	3 "
16 " 20 " " . .	5 "	2 "
20 and over	6 "	1 week

Foremen "A" receive pay for twelve weeks, from two weeks' full wage, and ten weeks' three-quarter wage, to twelve weeks' full wage, according to length of service; and foremen "B," according to their length of service, receive from two weeks' full wage, and seven weeks' three-quarter wage, to seven weeks' full wage and two weeks' three-quarter wage.

The payment during sickness for the men in the Offices is full wage from two weeks to twelve weeks, and four weeks half-wage according to period of full or part pay, or come on the general scale for sick pay, at the discretion of the Committee.

¹ After the specified number of weeks these employees would come on the general scale until twenty-four weekly sick payments were completed.

length of service. If their length of service exceeds twenty years, the special sick allowance may be extended at the discretion of the Firm.

The checkweighers and store clerks receive special sick allowance for six weeks, from one week full wage and five weeks' three-quarter wage, up to six weeks' full wage according to length of service.

The following table sets out the details of the special rates of sick pay for men and boys:—

Foremen "A." ¹	Full Wage.	Three-quarter Wage.
Under 9 years' service . .	2 weeks	10 weeks
9 to 12 " " . .	4 "	8 "
12 " 15 " " . .	6 "	6 "
15 " 18 " " . .	8 "	4 "
18 " 21 " " . .	10 "	2 "
21 and over	12 "	—

Foremen "B." ¹	Full Wage.	Three-quarter Wage.
Under 9 years' service . .	2 weeks	7 weeks
9 to 12 " " . .	3 "	6 "
12 " 15 " " . .	4 "	5 "
15 " 18 " " . .	5 "	4 "
18 " 21 " " . .	6 "	3 "
21 and over	7 "	2 "

¹ In the case of the continued illness of foremen a report is sent to the Men's Works Committee, and they would be granted a further period of full or part pay, or come on the general scale for sick pay, at the discretion of the Committee.

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Offices. ¹	Full Wage.	Half Wage.
Under 10 years' service . .	2 weeks	4 weeks
10 to 15 " " . .	4 "	
15 " 20 " " . .	12 "	
Over 20 " " . .	Firm's discretion	

Checkweighers and Stores. ¹	Full Wage.	Three-quarter Wage.
Under 4 years' service . .	1 week	5 weeks
4 to 8 " " . .	2 weeks	4 "
8 " 12 " " . .	3 "	3 "
12 " 16 " " . .	4 "	2 "
16 " 20 " " . .	5 "	1 week
20 and over	6 "	—

The claim for sick allowance has to be sent to the secretary, within two days of absence from work, on a form supplied by the Firm, stating the full name, address, check number, age, and department of the applicant, and also the nature of the illness; a weekly certificate is required as long as the illness continues. When ready to resume work another form must be sent to the secretary. All these notes must be signed and dated by a medical man, and countersigned by one of the Works doctors.

Any sick person who requires change of air is

¹ After the specified number of weeks these employees would come on the general scale until twenty-four weeks' sick payments were completed.

permitted to go away, provided that a certificate stating the necessity for such a change is sent to the secretary. This certificate, which must state the address to which the employee is going and the duration of the stay, must also be signed by a medical man, and countersigned by the Works doctor. If an employee has been sent to a convalescent home and is desirous of obtaining an extension, a certificate from the doctor attending the institution, to the effect that such an extension is necessary, must be forwarded to the secretary. If a girl time-worker stays at the Firm's convalescent home during an illness, a deduction of ten shillings per week is made from her sick allowance and paid to the convalescent home account, but if this amount is more than half the sick pay allowance, then the half sick pay only is deducted.

During the receipt of sick allowance it is prohibited to act in any way that may retard recovery. The patient is not allowed to be out of doors later than 9 o'clock in the evening between March 25 and September 25, or after 6 o'clock during the remainder of the year, without the written permission of the Works doctor. Refusal to see a visitor appointed by the Committee renders the employee liable to the loss of sick allowance for the week.

An employee is also liable to forfeiture of sick allowance, if, having already consulted a medical man (the Works doctor or any other), with reference to any ailment, and having received advice and treatment, such employee then seeks further advice without first notifying the doctor who has been already consulted.

In the event of death the funeral donation is paid to the nearest relative or legal representative of the deceased, or in the case of the death of a wife, to her husband.

In the case of an infectious disease at the home of an employee, he or she is not permitted to pass the entrance lodges, or return to work for fourteen days, without the written permission of one of the Works doctors, or until certified by a medical man to be free from infection, and such certificate must be countersigned by the Works doctor.

The Firm reserves the right to alter the scale of payment and the rules as they think fit, or to discontinue the sick benefit scheme without notice.

The table on the following page gives a comparative list of payments of sick allowance for the years shown, not including funeral donations :—

Year.	Men. ¹	Sick Allowances.			Women. ¹	Sick Allowances.		
		£	s.	d.		£	s.	d.
1903	359	473	8	7	729	807	9	0
1904	410	487	0	7	722	925	18	8
1905	381	533	4	11	666	869	11	4
1906	358	503	15	10	685	808	19	0
1907	464	668	18	10	879	1106	14	2
1908	556	803	17	2	922	1172	9	7
1909	587	783	7	3	1030	1204	13	10
1910	783	989	5	9	1317	1503	3	3
1911	905	1091	10	9	1998	1638	6	9

Hospital Notes.—In order to meet the needs of employees requiring special treatment the Firm subscribes to most of the local hospitals, and a Hospital Notes Joint Committee, composed of a representative from the Girls' and from the Men's Works Committees, joined by members of the committee of the benefit scheme for sick employees, including the doctors, a nurse, and a representative of the wages office, and the secretary of the sick fund, meet every Saturday morning in the surgery, when applications for hospital notes are dealt with. These applications can be made personally to the Works doctors any morning between 9.30 and 11 o'clock. Requests for hospital notes for relatives must be made to the secretary in

¹ The rise in the figures, in general, is due to the increased number of employees each year. For number of employees in these years, see pp. 75, 91, 252.

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writing. Dispensary notes are granted only to men's wives in addition to employees requiring them for personal use.

The following out-patient notes were granted during the past two years :—

GIRLS' DEPARTMENT.

	Apr. 1909—Mar. 1910.	Apr. 1910—Mar. 1911.
General Hospital	2	5
Eye Hospital	47	48
Ear and Throat Hospital	37	52
Dental Hospital	1	7
Orthopædic and Spinal	5	9
Dispensary	2	2

MEN'S DEPARTMENT.

	Apr. 1909—Mar. 1910.	Apr. 1910—Mar. 1911.
General Hospital	16	17
Eye Hospital	40	48
Ear and Throat Hospital	54	52
Dental Hospital	6	1
Orthopædic and Spinal	4	9
Dispensary	10	15
St. John's Brine Baths	—	4

The in-patient tickets supplied to girls in 1910-11 were 4, and to men 9. The total number of tickets presented to employees was 282 in 1910-11, as compared with 228 in 1909-10.

The Insurance Act.—The Insurance Act has been the cause of much serious thought to the Firm, owing to its effect upon the existing schemes in operation at the Works. The most

careful consideration has been given to the Act and its probable effect upon the employees. Meetings of the men's and women's departments have been held to discuss the question of forming a separate society in connection with the Works, for the purpose of insurance, but the Firm, without desiring to influence the employees' decision in any way, reluctantly decided that for their part, they did not consider it advisable to undertake any responsibility with regard to the creation of a separate society, as there are so many difficulties in the way of carrying this on with the hope of any permanent success; and the employees themselves in all departments, after freely discussing the matter, also came to the conclusion that it was inadvisable to form such a society. The Firm has had a pamphlet prepared and distributed to all employees giving a summary of the provisions of the Act as they affect the workpeople at Bournville.

It has been decided to continue the present sick scheme until January 15, 1913, when the sickness benefits under the Act become payable. The funeral donations as at present paid will be continued as a voluntary gift after January 15, 1913; and where there are special sickness schemes applicable to certain classes

of employees, these are to remain in force until such time as benefits become payable under the Act.

The Firm has agreed to continue to pay sick benefit to all boys and girls under 16 years of age, as these do not receive sick pay under the Insurance Act.

CHAPTER VI

ORGANIZATION

IN the chapter on the Education of Employees reference was made to the Works Education Committee. It was pointed out that it was so constituted that the students should be able to obtain expert advice, and that the scheme should be at once practical and educational in the best sense. The Board of Directors, with educational experts, and workmen's representatives, combine to determine the general policy; experts deal with particular problems, the aim being to bring the best knowledge available to bear on details, and to ensure that this knowledge shall be available when the need arises. This committee illustrates the principle that runs through the whole organization of the business.

At the centre is the Board of Directors, who discuss and settle all general problems connected with every part of the business, while each director specializes on some one or two departments, and by means of committee or staff

organization, keeps himself in the closest touch with the details as well as the general problems of his department. Thus one director deals with buying, another with advertisements, and others with sales, costs, men's departments, women's departments, etc. Each department has its own staff, many of them specialists, whose business it is to know, and to supervise, or carry out, their special duties, while at the same time, they are kept in closest touch with the general policy and problems of their departments, by the committee meeting of their staff or department. In each case, the director is chairman of the committee, so that he is fully aware of the details of his department, while as a member of the Board of Directors he represents that department and controls its relation to the general business. He brings to the Board of Directors any proposals emanating from his committee or department, and on the other hand, takes to his committee for consideration and discussion the various matters that are referred to them before being carried out. In this way, all the available knowledge of the Firm as a whole, can be brought to bear on any point of detail or difficulty when required, and no case of difficulty or dislocation can arise without it coming to the knowledge of the Board of Directors.

The operation and effect of this method can be illustrated by a description of the constitution and function of the Men's Works Committee.

MEN'S WORKS COMMITTEE

The Men's Works Committee was inaugurated by the Firm in 1905. The committee at its commencement consisted of ten members, eight of whom were appointed by the Directors from the list of men on Staff "A" and Foremen "A" (*i.e.* representatives of the Engineering Department, the Wages Office, the Costs Office, the Chemists, the Buildings Department, and the Manufacturing and other important departments), and two foremen "A" elected by the foremen, the whole being presided over by one of the directors.

At first, the work of the committee was not very extensive. It included such items as the making and revision of Works rules, the investigation of complaints received from customers, the initiatory arrangements for Works' exhibitions, annual gatherings, athletic club sports, the arrangement of boys' gymnasium classes, and also the supervision of reports and statistics relating to various details of the factory

administration, and the suggestions received through the Suggestion Scheme.

It will thus be seen that at first the committee confined its attention largely to what may be considered the social and welfare side of the Works, but in the course of time its scope was enlarged, since by reason of its representative character, it was found to be well adapted to deal with other concerns more connected with the business side of the Firm.

In 1908 the committee was wholly appointed by the Board, and the two representatives of foremen "A," who were then members, were given a permanent position. The range of the committee's duties has gradually increased, and now includes, in addition to the duties previously specified, supervision of processes of manufacture in the men's departments, responsibility for output, organization and oversight of watchmen, timekeepers, fire brigade, stores, and various trade departments, such as tinsmiths, carpenters, etc. Some of the earlier duties have now been transferred to special committees, such as the Education Committee and Suggestion Committee.

The committee meets on Monday mornings, each member having received the agenda by the previous Friday morning, thus allowing

sufficient time for each one to put in order the various matters which have been deputed to him.

The duties of the committee are not the active superintendence of the departments, but since the daily work of the members brings them into direct and intimate relations with the work of the departments they represent, the committee acts in an advisory and consultative capacity. Any difficulties arising in the work or arrangements of a minor character, are dealt with at once by the individual placed in control of the department, and any matters of an urgent nature by the director concerned; but where time and the nature of the difficulty allow, the matter is discussed in the Men's Committee, in many cases by the request of the Board of Directors.

There are four standing sub-committees, dealing with Works holidays, Accidents, Allotment gardens, and Sick Benefit, and other special sub-committees are appointed from time to time. In matters of a decidedly technical character which concern particular departments, the sub-committee appointed is, of course, composed of members who are most competent to go fully into the question by reason of their knowledge of the subject.

The Summer Party Committee,¹ which acts in conjunction with the Girls' Works Committee and the Men's Suggestion Committee, reports to the Men's Works Committee, and in the case of the latter, all suggestions accepted are first submitted to it for approval. The Men's Works Committee appoints three members to the Summer Party Committee and two members to the Men's Suggestion Committee.

In addition to the other items coming within the scope of this body, the following also may be mentioned :—

Plans.—All plans for new buildings, for extension of and alterations to old buildings, for the purchase and erection of new machinery, in short, any work which would necessitate the drawing up of plans, is first submitted for consideration to the Men's Works Committee. Taking into account the constitution of the committee, the advantages to be derived from this course are obvious. The plans are critically examined, and if necessary, suggestions are made for their improvement. When accepted as satisfactory, they are passed on to the Board for consideration and final decision.

Holidays.—The proposals for the length of

¹ This committee organizes the Annual Gathering of Employees (see p. 237).

the various holidays, including the summer holidays, are suggested to the Board by this committee.

Night and Sunday Inspection of Works.

—This is a duty taken in rotation by members of the committee, who make a round of the whole of the Works, and report upon the condition in which the rooms, the passages, etc., are found, and make any suggestions for their improvement. One useful purpose such visits of inspection serve, is that of keeping in touch with the watchmen on duty.

Inspection of Ladders, Tunnels, Arches, Skylights, Bridges, Beams, and Fire Appliances.—Those appointed to examine the above report in the same way to the committee.

Recreation Grounds and Buildings.—The Men's Works Committee are responsible for the state and condition of the Men's Recreation grounds and buildings, and permanent improvements and alterations to them, but the Athletic Club controls and manages these so far as their use is concerned.

In addition to the foregoing, this body deals every week with any current business which may arise, many such questions being referred to it by the Board.

Distress Cases.—It sometimes happens that an employee is incapacitated by illness for

a considerable period, and consequently runs out of the benefits provided by the Sick Benefit Scheme. Such cases amongst the men are reported to the Men's Works Committee, and inquiries are then made as to the financial position of such employee. Should he be found to be in need, a grant is made of a fixed sum per week for a definite period, at the expiration of which the case is again considered, and if necessary a further grant is made for another period, and so on. The Board has given power to the committee to make grants up to £5 in any one case for a term not exceeding six months. Any further action would need special permission from the Board.

The Men's Works Committee is also directly responsible for granting permission for voluntary collections within the Works. If for any reason the employees wish to subscribe for the benefit of any of their fellow-employees such permission is granted by the committee, if it is satisfied that a collection is necessary or advisable. In order, however, to avoid any suggestion of compulsion as regards contributions to these funds, sealed boxes are provided, on the outside of which is affixed a notice stating the object of such collection, and this box is taken round to the departments included in the permit, by a

had not exceeding sixteen years of age. It is not considered advisable that a foreman, or any one in authority, should solicit gifts of this kind.

The Men's Works Committee appoints one of its members each week, usually the secretary, to attend the Girls' Works Committee to take forward such matters as concern the latter committee and bring forward to his own committee matters referred to it by the Girls' Works Committee. This delegation forms the connecting link between these two bodies.

One important point must not be omitted, namely, that any expenditure of funds beyond a specified amount must be sent to the Board for sanction. This principle also holds good in many other matters. When a question of policy arises upon which the committee considers there is any doubt as to the Board's opinion, or what might be their opinion if the facts were before them, then the whole matter is placed before the Board, together with the committee's recommendations, the final settlement resting with the Board.

This method of working has proved very satisfactory. The chairman of the committee is a director, and this of itself acts as an effective safeguard upon the decisions of the committee, or the committal of the Firm to any policy.

GIRLS' WORKS COMMITTEE.

The Girls' Works Committee has been in existence since 1905, and it was formed for the administration of matters in connection with the departments in which girls are employed at the Works. It is composed of ten members, two of whom are elected annually by the forewomen as their representatives ; one is a member of and represents the Men's Works Committee ; and the remainder, including the lady doctor, are appointed by the Board of Directors. The chairman is one of the directors. The committee meets each week during the year, excepting at holiday times.

The duties of the committee are very varied, and, as in the case of the Men's Works Committee, certain departments are allotted to each member, who is responsible for reporting on them to the committee.

The following are some of the subjects with which the Girls' Works Committee deals :—

Suggestions.—All the suggestions received from the girls' departments during the week are discussed and considered, and instructions are given for the carrying out of any adopted suggestion.¹

¹ See Suggestion Scheme, p. 212 *et seq.*

Complaints.—The committee investigates cases of complaint as to faulty work or material, and also grievances of women employees received through the Suggestion Scheme. It makes recommendations as to rates of wages, and the improvement of conditions in the Works, etc.

Plans.—All plans of additional buildings and extensions, and of proposed alterations to rooms in girls' departments, are examined by this committee, and passed by it, before being submitted to the Board for consideration and final decision.

Staff.—The committee fills vacancies as they occur in the staff of forewomen and under-forewomen by sending in nominations for the approval of the Board. It conducts periodical examinations for those who wish to qualify as under-forewomen, and selects from the list of those who have passed the examination, those who are best qualified for work of this kind.

Improvements in Organization.—The committee considers improvements in organization, such as the standardizing of utensils, the efficient supply of materials, the provision of additional machines, and lighting, also such matters as the limit of weight to be carried by girls.

Accidents.—All accidents occurring in the

girls' departments are reported to the committee, which decides whether the injured girl shall receive sick pay in addition to accident pay.

Fire Drill.—The committee is responsible for the arrangements for fire drill in the girls' departments. In order that the girls may learn the right exit, and the right method of leaving the room in case of fire, this committee conducts periodical drills. A bonus is given to each forewoman whose department has been free from fire for six months, and the Girls' Works Committee has the passing of these fire payments each half-year, and the assessing of the amounts.

Distress Cases.—The committee investigates the cases of girls who are away through illness and are out of sick benefit, and on the recommendation of the doctor, special allowances are made for periods from one to three months as the case requires. A limit is made of £5 in any one case, as in the men's distress cases.

Reports.—All reports from the girls' departments referring to waste, spoilt work, etc., and also the reports from the retiring-room attendant, and from the Girls' Convalescent Home are received by this committee. The committee also receives reports on any overtime

worked in the various departments, and is thus a check against overtime being worked.

Inspection.—The members of the committee periodically inspect dressing-rooms, dining-rooms, lavatories, kitchen, baths, gymnasium, stores, etc., and report as to their cleanliness, and as to the necessity for any repairs, alterations, etc. They also periodically inspect the girls' recreation grounds.

In some of the rooms, especially among the younger girls, the committee has arranged that the girls should from time to time sing together for about half an hour while at work.

It will be seen that the duties of the Girls' Works Committee are largely parallel to those of the Men's Committee, the former, of course, being confined to matters affecting the girls.

SUGGESTION SCHEME.

A Suggestion Scheme was inaugurated in May, 1902, in order to induce and encourage employees to make suggestions concerning the welfare both of the business and of themselves. The directors desired that all the workers at Bournville should take an active interest in their work and environment, and they invited suggestions on any matter, whether

connected with the efficient working of the business, or the comfort of the employees. Although the Firm had always made every endeavour to keep their methods as up-to-date as possible, they felt that those who were actively engaged in the various operations in the Works, by virtue of their experience, could often point out improvements which would be valuable in the progressive organization of the business. Experience has proved that the commencement of this scheme was a wise step, and the co-operation of the employees in this connection has been very helpful.

Suggestions are invited on the various matters indicated under the following headings:—

1. New or improved goods.
2. Improvement in method of manufacture.
3. Suggestions appertaining to advertisements or methods likely to increase sales.
4. Improvements with reference to management.
5. Suggestions affecting the social well-being, *i.e.* Athletic and other clubs, Societies, Libraries, Magazine, etc.
6. Any suggestion of whatever character so long as it bears some relation to, or is connected with, the Works at Bournville.

Two committees have been appointed under the scheme, one for the consideration of suggestions made by the men, and the other for the consideration of suggestions made by the

girls. Each committee has a separate secretary, and under no circumstances is a girl's suggestion considered by the men's committee or *vice versa*. The chairman of the men's suggestion committee is appointed by the Firm, two of the members are representatives of the Men's Works Committee, two members are elected by ballot to represent the foremen (one of these represents the manufacturing departments' foremen and the other the trades departments' foremen), and three members are elected by the ballot of the employees, one of these being a trades' representative, one a manufacturing representative, and one an office representative. Five of the members of this committee of eight are therefore elected by ballot. There are no co-opted or ex-officio members. In the case of the girls' departments, as already stated, the Girls' Works Committee deals with the suggestions.

The work of these committees is allotted with great care in order to ensure that each member shall be responsible for reporting upon suggestions concerning the work in which he or she has practical knowledge. This is a most important provision; if suggestions are to be given fair and proper consideration they must be reported upon by those who understand the

particular section of work to which the suggestion refers.

A suggestion box, provided with a specially printed duplicate book, is placed in every department. The employees write out their suggestions or complaints in the book, filling in their name, check number, department and date. The duplicate copies are then torn out of the book, one being kept for reference by the person making the suggestion, and the other put through the opening into the suggestion box. The boxes are opened each day by the secretaries and the suggestions collected.

In the office the suggestions are numbered consecutively and dated with an automatic date-stamp. An acknowledgment is sent to each person, in a closed envelope, to the effect that the suggestion has been received, and that a report will be forwarded as soon as it has been considered. The suggestions are then entered in a book in numerical order, with the name and particulars of the suggestor. A report form, omitting the identity of the suggestor, is sent to the member of the committee who is responsible for reports on suggestions from the particular department or class of work concerned. When the suggestion is received by this member of the committee it is given careful consideration,

and the head of the department concerned is consulted. Both these opinions, whether they are in agreement or not, are then reported to the committee.

The committees meet once a week, members having been previously provided with a copy of the suggestions which it is recommended should be adopted, declined, or left for the committee's consideration, and any queries raised are discussed. Occasionally suggestions are carried forward to the next meeting, one or two members being appointed to look into them in the meantime, and to submit a further report. In all cases of difference of opinion a vote is taken.

Suggestors are then informed whether their suggestions have been adopted or declined. When a girl's suggestion is accepted, one shilling is paid for it on the following Friday, the girl filling in a receipt form provided, and handing it to the secretary when applying at the Suggestion Office. This payment is made to the girls quite independently of the prizes awarded for suggestions at the end of every half-year. When a suggestion is declined, the reason for this is stated as far as possible.

In the case of an adopted suggestion, an order is at once issued for the carrying out of

the idea, and a month afterwards a note is sent to the foreman or forewoman of the department concerned, inquiring if the suggestion has been carried out satisfactorily, and also what is estimated to be the value of it to the Firm or to the employees, and the report obtained is entered by the side of the suggestion. A form is also sent to the suggestor asking whether the idea has been carried out to his or her satisfaction, and what he or she considers has been its success. A member of the committee is invited to reply to the same queries upon each suggestion adopted, and the committee, in considering what prize shall be awarded for the suggestion, have therefore two independent reports of the value of it. The name of the suggestor is known only to the secretary until the prize distribution.

At the end of every six months the whole of the suggestions accepted during that period are drawn up on a special list, together with any that were deferred from the previous half-year,¹ and all the reports received on them. The general principle of awarding prizes is to ascertain the value of the suggestion in saving of time, labour or material. The final lists are

¹ Suggestions are deferred for some special reason, *e.g.* that the work was not quite completed and the value could not therefore be reported upon.

placed before the Firm for their approval. No prize is awarded unless the suggestion has been carried out and found practicable. All suggestions are regarded as confidential and are the property of the Firm. If a suggestor has, in the meantime, left the employ of the Firm the prize is still awarded, unless the cause of leaving has been very serious misconduct. A social gathering of prize winners is generally held at the Works at the half-yearly distribution of prizes.

It is always open to a suggestor who has not been satisfied when his suggestion has been declined, to send it in again, preferably by a letter to the secretary. The committee are always glad to reconsider a suggestion, and to meet any doubts a suggestor may have, and they invite an inquiry from the suggestor whenever it is felt that a suggestion has not been clearly understood.

There is no doubt that the efficiency of the Works at Bournville is assisted by the Suggestion Scheme, and it has been found that the good accomplished, is not only in the pecuniary value to the Firm or to the suggestor, but also in the development of the mental and creative power, which makes both men and girls more efficient and valuable workers, and fosters an intelligent independence.

In order to give an added stimulus to the Suggestion Scheme, a Championship Shield is now offered to be competed for by the various men's departments at the Works. The department gaining the highest percentage of suggestions, or value of prizes in relation to the number of men in the department, are the half-yearly holders of the shield.

The following summaries show the progress of the scheme since its commencement :—

GIRLS' SUGGESTION SCHEME.

COMPARATIVE STATEMENT SHOWING PROGRESS OF SCHEME SINCE ITS COMMENCEMENT.

Half year ending	Suggestions received.	Number accepted.	Number declined.	Carried forward.	Previously considered.	Amount awarded. ¹
		per cent.				£ s. d.
1902, Oct. 31	325	170=52	135	38	—	27 10 0
1903, Apr. 30	1092	358=33	689	29	—	51 5 0
1903, Oct. 31	1062	354=33	708	53	—	48 15 0
1904, Apr. 30	1000	368=37	632	31	—	54 7 6
1904, Oct. 31	887	240=27	648	29	—	36 15 0
1905, Apr. 30	1322	330=25	775	53	217	32 0 0
1905, Oct. 31	720	200=27	402	48	118	32 0 0
1906, Apr. 30	830	272=32	477	66	81	62 7 6
1906, Oct. 31	1730	565=32	1020	113	145	44 15 0
1907, Apr. 30	1379	231=16	1070	43	53	40 0 0
1907, Oct. 31	1073	264=24	740	35	43	33 15 0
1908, Apr. 30	1306	359=27	867	31	49	50 10 0
1908, Oct. 31	1023	296=28	515	80	43	56 0 0
1909, Apr. 30	1323	200=15	1034	51	38	44 0 0
1909, Oct. 31	1448	290=20	888	142	128	40 0 0
1910, Apr. 30	1441	322=22	825	91	203	37 0 7½
1910, Oct. 31	1217	306=25	706	87	140	31 5 0
1911, Apr. 30	1485	371=25	1131	182	51	35 12 6
1911, Oct. 31	1192	285=24	840	35	30	32 6 10½
1912, Apr. 30	1700	418=24½	1100	54	130	31 10 0

¹ These amounts are exclusive of the shilling acknowledgment sent to each girl whose suggestion is accepted.

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MEN'S SUGGESTION SCHEME.

COMPARATIVE STATEMENT SHOWING PROGRESS OF SCHEME SINCE ITS COMMENCEMENT.

Half year ending.	Total received.	Suggestions received previously considered.	Suggestions accepted and considered.	Suggestions accepted. per cent.	Suggestions declined.	Amounts awarded.	
						£	s. d.
1902, Oct. 31	279	—	—	142 = 51	119	54	5 0
1903, Apr. 30	1710	—	—	673 = 39	1003	118	5 0
1903, Oct. 31	1631	—	—	570 = 38	942	122	5 0
1904, Apr. 30	1914	—	—	486 = 25	1293	89	15 0
1904, Oct. 31	1005	—	—	270 = 25	729	85	0 0
1905, Apr. 30	1603	141	—	382 = 24	921	108	17 6
1905, Oct. 31	1053	163	890	286 = 27	490	78	7 6
1906, Apr. 30	974	119	855	255 = 29	527	97	5 0
1906, Oct. 31	1708	131	1577	466 = 29	1060	73	7 6
1907, Apr. 30	1653	303	1350	403 = 30	874	77	15 6
1907, Oct. 31	1450	214	1236	392 = 27	719	69	2 0
1908, Apr. 30	1349	135	1214	282 = 23	646	70	15 0
1908, Oct. 31	1182	94	1088	300 = 27·5	652	73	2 6
1909, Apr. 30	1252	147	1105	447 = 40·2	670	161	0 0
1909, Oct. 31	1725	213	1512	580 = 33·62	754	160	15 0
1910, Apr. 30	1938	227	1770	536 = 27·65	1366	124	7 6
1910, Oct. 31	1399	218	1181	416 = 29·7	914	158	10 7½
1911, Apr. 30	1912	244	1668	469 = 24·5	964	116	17 6
1911, Oct. 31	1164	158	1006	450 = 38·66	540	112	10 0
1912, Apr. 30	1313	205	1108	428 = 32·59	894	141	12 6

CHAPTER VII

RECREATIVE AND SOCIAL INSTITUTIONS

THE value of the development of the employees socially has always been recognized by the Firm. In the early days, before the Works were moved from Birmingham to Bournville, the recreation of the employees was encouraged, and cricket matches were played by the principals and the staff. Half a dozen employees would be liberated for one afternoon a week and instructed to go to a local park with a football ; and an old employee remembers that when skating could be indulged in, and there was no great pressure of work, the appearance of one of the principals with his skates was a sure sign that the employees would be allowed a half-day's skating. The clerk's spring outing and the girls' outing were also annual affairs fifty years ago.

On the removal of the Works to Bournville in 1879, sport and outdoor games were still further encouraged ; a recreation ground was set apart for men, and in the course of time the

services of a coach were secured for cricket. Gardens were also put at the disposal of the employees, and prizes were offered for the best results. Girls were given the use of a playground and a cultivated garden for rest and recreation, and cooking classes were also arranged for them.

At the present time there are a large number of social institutions, which constitute the recreative side of the Works. The various activities are not under a single organization, and the management of them is generally separate and distinct. The varied objects and the magnitude of the schemes necessitate this separation, but behind them all is the conception of the essential unity of the whole.

Athletic Clubs.—Athletic sports and games at Bournville are organized through separate clubs, the Bournville Athletic Club for men and youths, the Bournville Girls' Athletic Club, while the Bournville Youths' Club extensively supplements the organization of the out-door pursuits of its members.

Men's Athletic Club.—The annual subscription to the men's club is 5s. a year, those under 18 paying 3s., and about 1300 of the employees are members. The scope of the club is shown in the following analysis of its games :—

	Teams.	Matches played 1911.
Association Football	5 . .	120
Rugby Football	2 . .	45
Hockey	2 . .	35
Cricket	3 . .	54
Bowling	2 . .	40
Water Polo	2 . .	12
Tennis	1 . .	4
	<u>17</u>	<u>310</u>

Interdepartmental cricket matches take place, and most of the football teams take part in the various league competitions of Birmingham and district.

There is also a successful fishing section, with a membership of about 200 men, and frequent visits are paid to the angling resorts of the district.

The men's grounds are more than twelve acres in extent, and have been laid out for outdoor games. There is a pavilion and gymnasium fitted with dressing-rooms and hot and cold shower baths, and there is also an open-air bath with covered dressing-rooms. The use of the gymnasium and the open-air swimming bath is shared by the physical training classes referred to in the chapter on the Education of Employees.

The men's club manages its own affairs through an elected executive committee, and maintains the grounds and pavilion which the

Firm has put at its disposal. At the annual meeting of this club in July, 1911, the director who was in the chair said, that after careful thought and an analysis of the figures, the Firm had come to the conclusion that it would be better for the club itself to manage the men's recreation ground and pavilion. The average cost of the ground and pavilion to the Firm during the previous three years had been £720, and the Firm had decided to place this annually in the club's funds, together with a capitation grant of 4s. for each member. The Firm had no idea of stinting the club, but thought it might be possible by giving them the money, that they would make a wider use of it. The larger the number of members the better pleased would the Firm be. The membership of the club in July, 1912, was 1299.

The club has its annual sports meeting, and many open events are held which are entered by local athletic clubs.

The Girls' Athletic Club is a similar organization, being self-managed through an elected executive committee. The lady physical training instructors engaged in connection with the gymnasium¹ are expected, as part of their

¹ The physical training and swimming classes are all organized by the Works School Committee.

duties, to take an active part in the organization of the games.

Picturesque grounds, more than 12 acres in extent, are set apart for the recreation of the girls, a portion being reserved for the requirements of the organized games.

Any girl in the works may join the club by paying an entrance fee of 6*d.* and an annual subscription of 2*s.* The membership varies between 400 and 600 from the winter to the summer session, and is drawn chiefly from the younger girls.

Throughout the whole year, games are organized during the girls' dinner-hour and on Saturday afternoons. The organized sports during the winter are hockey and net-ball; cricket, tennis and croquet are played during the summer months. Interdepartmental matches are arranged in all these games, and also matches between the Bournville Girls' Athletic Club and the principal ladies' clubs in and around Birmingham. In the 1911-12 season, 98 matches were played by the five hockey teams, and there were thus frequently no fewer than 55 Bournville girls on Saturday afternoon on the hockey field. Seventeen cricket matches were played by the three teams, while a number of net-ball contests were fought by the two net-ball teams.

Fancy national dancing, Old English, Country and Morris dancing, of which a speciality is made, is provided for club members, and many girls take part in the dances.

Members of the club have classes in swimming set apart for those who are non-swimmers, and for those more advanced in the art there are elementary and advanced life-saving classes. Water-polo and team-swimming are also features of the swimming practice, and sports are held annually in connection with these.

There are also voluntary classes in gymnastics, divided into a four years' course, for club members. A physical training test for certificates and medals is held at the end of each year, and members who have made the required number of attendances may enter for these awards.

A social evening is held annually at Christmas-time, when entertainments are arranged by the members themselves, and much musical and dramatic talent is displayed.

In connection with swimming, the records show that during 1911 no fewer than 630 girls and 98 men and boys learned to swim, through the compulsory and voluntary classes. The number since 1905, when the large baths were opened, approaches 2000. A number of men, youths and girls enter annually for the tests of

the Royal Life-Saving Society, and are successful in winning a large number of awards.

Youths' Club.—The Youths' Club, which was founded in 1900, is an organization carried on for the benefit of the youths employed at the Bournville Offices and Works, and is open to all youths from 14 to 21 years of age.

The subscription is 9*d.* half-yearly for members under 18 years of age, and 1*s.* 6*d.* half-yearly for those over that age. The membership, which was 107 at the end of the first year, was 340 at the end of 1911.

The Club Rooms, which are provided by the Firm free of cost, include games rooms, reading room, library, museum, and class rooms.

The library is free to all the members.

The following is an example of the annotated catalogue of the boys' section of the Library :—

No.	Author.	Title.	Sub-title or Note.
A117	Scott, Sir W.	“Waverley”	The Rising of Prince Charles Edward in 1745.
A644	Connor, Ralph	“Black Rock”	North American Lumber Camps.
A643	Coke, Desmond T.	“The Bending of a Twig”	A tale of Shrewsbury School.
F900	Ruskin, John	“Sesame and Lilies”	Essays on reading; the training of boys and girls; and the mystery of life.
F913	Carlyle, Thomas	“Past and Present”	The ancient Monk and the modern Worker.

A number of books have lately been added dealing with the different trades carried on in the Works.

The Reading Room has a lantern sheet and platform at one end for the winter weekly lectures, etc. Concerts and social evenings are also held in it. Magazines and books are provided and very well used. Lectures are given voluntarily by local ladies and gentlemen, and are generally on literary, biographical, and topographical subjects. Special courses are also arranged on such subjects as Municipal Government, Gardening, Physiology, etc.

The Reading Circle holds its meetings during the winter, when such books as "Alton Locke," "A Tale of Two Cities," "Idylls of the King," "Paradise Lost," and text-books on English Literature, etc., are read and discussed by the members.

The indoor games include bagatelle, ping-pong, draughts, and chess, and the competitions which are arranged periodically are carried on with great zest.

The Museum contains geological and entomological specimens, etc., to which the members are invited to contribute.

The Class Room is used in the afternoons for the special classes held for the apprentices,¹

¹ See Chapter on Education of Employees, p 54.

and in the evenings by those members who wish to have a quiet room in which to do the homework set at the local evening classes.

The outdoor pursuits include football, cricket, cycling, and rambling. In 1911 there were three cricket teams, and eight football teams, 50 cricket and 243 football matches being played. Rambles are taken during the winter either to Birmingham to see places of historic or industrial interest, art galleries, etc., or into the country, visiting old churches, houses, Roman roads or other places of interest. The cycle runs, which are arranged for the summer months, are to places similar in character but farther afield.

The Annual Summer Camp is one of the most important features of the Club work. The Camp is held at the seaside for ten days during the Works summer holidays, at the end of July and the first week in August, the following places having in turn been visited:—Hunstanton, Pwllheli, Llanfairfechan, Fairbourne near Barmouth, Dunster near Minehead, Borth near Aberystwith, Dawlish, and Benllech Bay in Anglesey. Last year's party numbered 142. The members pay three-quarters of the cost, and the balance is made up out of money granted by the Firm. The charges vary according to age, as follows:—

		s.	d.
For members under 17 years of age . . .	17	6	
„ of 17 and 18 years of age	22	6	
„ „ 19 and 20 „	27	6	

This is inclusive of railway fares as well as cost of maintenance. Every member of the party takes a turn at fatigue duty, and assists in preparing the meals. Rambles to places of interest in the neighbourhood, boating excursions (for which the members pay extra) and cricket matches with local teams, all add to the interest of camp life. As nearly all the members can swim, the sea-bathing is an important feature, great care being taken to ensure safety.

The cost of the Club is about £450 a year including the annual Camp, but not including the buildings, which are provided and maintained by the Firm. About £250 of the cost is contributed by the members, and the remainder by the Firm. Voluntary helpers render very valuable assistance in organization and supervision, and the Club is fortunate in having a number of admirable assistants in this direction.

There has been a very marked improvement both in the mental and the physical type of youth working at Bournville since the Club was started, and in this the influence of the Club has a decided share. It is considered that this branch of social work is of great value because

of the help that is given to the immature worker at the most receptive age. The Club performs an educational function in the broadest sense, and is complementary to the work of the evening school. The playrooms at the Club, and the facilities it gives for outdoor sport, provide an outlet for a lad's animal spirits, while at the same time they have a disciplinary value. The library, reading circle, debates, lectures, etc., have a special value because the boys use them of their own free will. The Club creates a feeling of unity and breaks down the artificial divisions between Office and Works, and also maintains *esprit de corps*.

The Clerks' Social Club is managed by a committee elected by the Office Staff. A club house for the clerks has been in existence a number of years; it consists of a reading room, which is provided with papers, a billiard room, etc. Billiard handicaps and whist and cribbage tournaments are frequently held.

The Foremen's Club.—This is a similar institution to the Clerks' Club, its chief social activities being billiards and other games. Apart from these, the Club provides a centre for the discussion of matters of interest to the foremen, and in this respect fulfils a very useful purpose.

Camera Club.—Bournville Works has been wonderfully successful with its *Camera Club*, considering the comparatively small number of people from which to draw members for a photographic society. The Club is one of the largest "district societies" in the country, having between ninety and a hundred members. The Firm has always been ready to provide prizes for competitions to induce an interest in photography, and the Works magazine holds such a competition nearly every month. The Club has been affiliated to the Royal Photographic Society, and is linked with the Midland Federation of Photographic Clubs. It holds an annual exhibition, and its members compete in the open classes of other Clubs in various parts of the country. Inducement has been offered to members to take up record work of places of historical interest in the neighbourhood, and to use their hobby as the handmaiden of some science like botany, but, as in the case of the majority of Clubs, the preference is for pictorial work, and there is reason to believe that the Camera Club has done much to stimulate an interest in art among its members.

The Musical Society.—This society embraces a number of sections, managed much in the same way as the Men's Athletic Club. The

whole is the growth of many years, instruments having been put at the disposal of a few musical employees in very early days. A qualified Director of Music, appointed in 1908, undertakes the duties of conductor to the Orchestral Society, the Brass Band, and the Choral Society. He conducts classes in voice production and singing, and also teaches various musical instruments. The membership of the society is distributed as follows :—

Orchestral Society	38
Brass Band	30
Mandoline and Banjo Band	17
Choral Society	100
	<hr/>
	185

The average attendance at the Theory Class is 12, and at the Instrumental Class about 10.

Seven public concerts are given during the year at the Works, at which there is an average attendance of 1200. Several charitable institutions in the district have benefited by the proceeds from special concerts on their behalf.

Bournville Women Workers' Social Service League.—This was established in June, 1910, and the membership is now about 550. The object of the league is to assist in the improvement of conditions in the lives of women working in the factories of Birmingham

and district. It gives to its members opportunities for bringing pleasure into the lives of these women by personal service; and by financial assistance it largely helps to support the Birmingham Women Workers' Organization Committee, which aims at the improvement of the conditions of women workers in the Birmingham district by industrial and social education, and by trade union organization. Three members of the league are appointed on the committee of this organization, and the funds contributed by the league have enabled the committee to secure the services of an organizing secretary for trade union work.

During the summer, the league has several times entertained parties of Birmingham working girls in the grounds at Bournville, when athletic and swimming displays have been given, and games of net-ball, etc., have been played. On these occasions tea is provided by the members; the tables are decorated very daintily, and the visitors are afterwards entertained with Morris and other dances, the hostesses doing their best to teach their guests, so that all can join in. The festivities generally close with singing, and flowers and chocolates are often given to the girls when leaving.

For the outside social activities there is a

band of workers who give voluntary help to clubs for working girls in Birmingham. They teach the girls plain sewing, blouse-making, musical drill, club swinging, Morris dancing, swimming, etc. The help of the members of the league is much valued, and the regularity and punctuality of their attendance each week is greatly prized by the girls and by the leaders of the clubs. Many appreciative letters have been received as to the value of this assistance, from one of which the following quotation is given:—" . . . It would be quite impossible to hold the drill classes without the help of our friends from Bournville. They come most regularly and teach a rather wayward band of maidens to step lightly and gracefully in the quaint old English style known as Morris dancing. Many of the girls have become quite adepts at the art, others still have room for improvement, but they enter into it with such whole-hearted enjoyment, that it must more than repay our friends for their trouble. On sewing nights, we try plain and fancy needlework, from the re-footing of old stockings, and making of garments, to really pretty and intricate stitches in coloured silks put into table centres and cushion covers. We have been asked to cut fashionable gowns according to the

latest *French* style, or to make evening wraps, or fancy blouses, but needless to say we confine our efforts to plainer and more useful crafts of the needle. In this, as in other branches of our work, we are assisted by the Bournville workers. We are grateful for many useful parcels of clothing from them, and also for their many kind invitations to tea and entertainments at the beautiful recreation rooms and grounds at Messrs. Cadbury Brothers. 'I never had such a happy day in my life before,' was the verdict of many a girl who works in the close confines of an ordinary city factory. No words can adequately express our gratitude to those who are giving such real substantial help to our Girls' Guild. We simply say from our hearts, Thank you, and God bless you."

Forty-two members of the Social Service League gave assistance of this kind in 1911 in various clubs in the city.

The league is also interested in the education of its own members, and study circles and classes are held, with the object of better qualifying the members for social work by the study of factory legislation, national health, and citizenship.

The subscription to the league is 4*d.* per month for those over 18 years of age, and 2*d.*

per month for those under that age, and forewomen pay 6*d.*

Summer Holiday Excursions.—With a view to inducing employees to get an annual change, for some years past arrangements have been made with the railway companies for running special excursions to seaside and inland resorts at reduced bookings from eight up to fifteen days, the charge being 7*s.* 6*d.* for the shorter holiday to most of the places selected. In 1911 no fewer than 2966 Bournville workers and their friends took advantage of these facilities, and the following is a list of the places visited and the numbers taking the cheap tickets :—

<i>North Wales:</i> Rhyl, Colwyn, Llandudno, Bettwys-	
y-coed, Bangor, etc.	475
<i>North-East Coast:</i> Bridlington, Filey, Scarborough . . .	362
<i>West of England:</i> Taunton, Weston, Exeter, Torquay,	
Plymouth, etc.	461
<i>Cardigan Bay:</i> Barmouth, Aberystwyth, Towyn, etc. . .	487
<i>Lancashire Coast:</i> Blackpool, St. Anne's, etc.	476
<i>East Coast:</i> Yarmouth, Cromer, etc.	408
<i>South of England:</i> Southampton, Bournemouth, etc. . .	297

Annual Gathering of Employees.—Towards the end of June each year the Annual Gathering of Employees takes place. A half-holiday is given, and all the employees, the men accompanied by their wives, assemble in the recreation grounds. The number present at the 1911 annual gathering was over 7000. For

several years the chief item in a varied programme of entertainment has been two performances of a pastoral play, the parts being taken exclusively by the employees. When the girls' recreation grounds were rearranged, an amphitheatre was constructed to accommodate between 3000 and 4000 spectators, who could see and hear with comfort. Last year John Drinkwater's "An English Medley" was specially written for the occasion, the music being composed by Rutland Boughton. Two years previously Tennyson's "The Foresters" was given, and also a cantata entitled "Sherwood's Queen." The production of these performances is the culmination of many happy weeks of preparation and co-operation on the part of a very large number, and apart from the healthy pleasure the pageant and pastoral drama always afford, the occasion offers a means of happy intercourse to all grades of employees. In addition to the pastoral play, Morris and other dances are performed, and gymkhana competitions take place.

The holding of these gatherings of all the employees, including the representatives from all parts of the British Isles, has always been regarded as a matter of great importance, and no pains are spared to provide an entertainment

worthy of the occasion. It is a function with which memories and traditions are associated, dating back no less than forty-four years. In earlier years the gathering was held indoors at Christmas-time.

Libraries.—Although there is now a free public library within five minutes' walk of the factory, the Works libraries, which were started some years before this was opened, are still largely used. There are two libraries which are run separately, one for the girls' departments and one for the men's. The former is controlled by a committee, and the latter by the librarian. There is the usual heavy demand for fiction and magazine literature, but the selection of these for the library shelves is carefully made, and in the men's section, travel, history, biography, and science are well used. The chief features of the men's library are the open shelves and a carefully annotated catalogue, the latter being of great assistance to readers in choosing books. By an arrangement with Mudie's Library the men's section borrows important new publications for several months, thus enabling members to read books too expensive to add permanently to the library. The addition of a Trades' library to the men's section is an important development of the education scheme ;

it has been specially collected in order to be useful to apprentices, and the books may be borrowed only by them and by artisans. There is a special subscription for this section of one shilling a year, which carries opportunities for joining the general library at reduced rates. An arrangement has been made to enable the members of the girls' library to borrow books other than fiction from the library of the men's department, and an annual subscription is paid which entitles the girls' library to have a box of forty books on loan for twelve months. The girls' library is open for the issue of books before working hours in the morning, and during the dinner hour, and the men's library, which is situated at the Youths' Club, is open at midday and for two hours in the evening.

There is also a library of music under the management of the Musical Society.

The following table shows the recent work of the libraries :—

	Subscription.	No. of vols.	Issues 1911.
Men's department . . .	1s. per annum .	2,000	5,457
" trade section . . .	1s. " " .	100	95
Girls' department . . .	2s. per annum, or 1d. per vol. per week . . .	750	3,719
Musical Library . . .	Included in membership . . .	100	50
		2,950	9,321

Magazine.—The *Bournville Works Magazine*, published since 1902, is the official Works organ and record of the social activities. The publication is a monthly one. It is the production almost entirely of the employees themselves, and the illustrations are very largely provided by Works photographers and artists. The magazine serves the useful purpose of keeping employees in touch with information about the social institutions, and it also contains articles of general interest. The number of contributors, whether of articles or information for reports, etc., is now very large, and this is probably the best testimony to its value. The magazine is distributed free of charge to all employees, and can be obtained by the general public at a charge of threepence a copy. The cost to the Firm is about £500 per annum.

Workpeople's Exhibition.—On two occasions during recent years a large Exhibition of handicrafts by employees has been held, including such varied articles as needlework, carpentry, cookery, painting, machinery, etc., covering the whole range of products of the leisure hours of the workers. A third exhibition is now being organized, which will enable the work of all classes of students under the educational scheme to be seen together, and an

interesting light will be thrown on the possibilities of the evening classes. Exhibits by apprentices and artisans will also be shown.

The first exhibition was a great success, and revealed the significant fact that the leisure of men working a forty-eight hours' week, and of women working a forty-one or forty-two hours' week, can be, and is, well and profitably occupied in many different ways. The exhibitions also proved to be a gauge of the real social feeling between the workers, and of their readiness to reveal their own productions, and take an interest in the hobbies of their fellow-workers.

Allotments.—The available land not immediately required for the purpose of extending the buildings of the factory is turned to a useful purpose, by being let out in allotment gardens to the men employed at the Works; and a small sub-committee, composed of three of the members of the Men's Works Committee, deals with this matter.

The total area of the allotments is three acres, and they are worked by 73 men. The yearly rent charged is 6*d.* per rod (30¼ square yards), and preference is given to men employed at the Works who have no garden, or only a small one, at their homes. No sub-letting or transference is allowed, and no one

is permitted to hold more than 250 yards, except in special circumstances. Buildings are not allowed to be erected without the permission of the allotments committee. The allotments have to be cultivated to the satisfaction of the committee, and prizes are awarded each year for those which are kept in the best condition.

Three months' notice must be given on either side to terminate tenancy, and if such notice is given to the tenant, a compensation of double the cost value of all root and seed crops planted by the tenant, and growing on the land, is granted, and the balance of rent is returned. Should the land be required for building, the Firm is allowed at once to terminate the tenancy without notice, but in that case the compensation for crops would be three times their cost value, and the balance of rent would also be returned.

CHAPTER VIII

INDUSTRIAL CONDITIONS

IN the previous chapters an attempt has been made to show how the organization of the Works aims at minimizing some of the disadvantages and drawbacks of factory life. The reader will have observed that these have been attacked from many different sides. In this chapter it is proposed to focus a few of these lines of activity towards improvement, and briefly to indicate one or two others not already touched upon.

Monotony of Employment.—The effects of automatic machinery and monotony of work are amongst the more important ways in which factory life influences character. In respect to this it is not much advantage to point out, as some economists do, that, compared with savage or backward races, an unskilled man is relatively skilled, and that probably not one-tenth of the present population of the world have the mental and moral faculties, the intelligence, and the

self-control, that are required for the work of tending machinery ; and that even amongst a manufacturing population only a small part are capable of doing many of the tasks that appear at first sight to be entirely monotonous. It must be admitted that many of the processes are monotonous, and that subdivision of labour is carried on to such an extent that there is a narrowing of interest. Variety is the essence of life, and machinery is the enemy of variety. The aim of automatic machinery is to do exactly the same thing over and over again. This monotonous employment applies even in a greater degree to women than to men, because women are put to lighter and more automatic machines. Under present conditions, at least 50 per cent. of the workers must be engaged in unskilled or semi-skilled work.

An endeavour has been made to meet this difficulty, as far as possible, in the girls' departments at Bournville, by putting the younger girls to the more routine and mechanical work, and then transferring them to more varied work as they grow older. On the boys' side, there is the chance of selection as an apprentice at the age of sixteen. There is also the continued education of all boys and girls, and the intervals for physical training classes during

working hours of the younger ones. When opportunities for promotion occur the records of the workers are taken into account, and in some cases competitive examinations open to all are held. In all cases a deliberate attempt is made to eliminate favouritism and to let merit be the deciding factor. The Suggestion Scheme, again, calls forth the initiative and enterprise of the workers. In regard to the unskilled workers, however, it must be admitted that as far as the workshop itself is concerned, much monotony remains, and the best method at present for ameliorating this, is to have short hours, and to encourage boys and girls to take full advantage of educational facilities so that they may have in their leisure time as varied and full a social life as possible. In the various social institutions, and in trade union and other similar movements, there is opportunity even for the unskilled man to exercise any initiative and enterprise he may possess.

The Standard and Quality of Work.—

The quality of the work an employee has to do is another point closely related to the question of monotony. Character and intelligence are directly affected by the quality of work on which a man or woman is regularly

engaged. Next to his religious convictions and the home atmosphere, a man's work and its environment are probably the most potent forces in his life. When it is remembered that the greater part of a person's waking life is spent in his work, the importance of its nature and quality is evident. A worker cannot be making the best of himself when he is constantly engaged in the manufacture of commodities in which quality and finish are lacking, and in which the conditions of production do not demand, or may even prevent, honesty of purpose and pride of work. In respect to this it can only be said that the Firm aims at demanding the highest quality of work, and by the system of organization, endeavours to place the responsibility on the person concerned, and to make it his interest to check waste and extravagance.

Hygienic and Clean Surroundings.—A valuable aid to the development of habits of order, and a feeling of self-respect, is in the provision of clean and sanitary surroundings. The effect on character of dirty and insanitary premises, or work of a rough or dirty kind, does not need to be emphasized. It is a well-known fact that the rougher and dirtier the work, the more difficult it is for the worker who does it, to keep from deteriorating. In spite of the

legal requirements, many factory inspectors report cases of defective ventilation, and of dirty and insanitary conditions, in their districts. It is often said that the workers themselves object to the ventilation of the rooms, but one of the lady factory inspectors has remarked that she has never known objections raised, when the fresh air was provided properly warmed, and not in the form of a draught. A depressed and devitalized condition is produced on workers by long hours of work in rooms that are ill-ventilated, dirty, badly lighted, and insufficiently warmed, such conditions destroying alertness of attention, and producing a desire for excitement, which finds an outlet in unwholesome recreation. Even more serious is the question of sanitary conveniences. The Local Authorities seem to demand different standards in this respect, and therefore the conditions greatly vary. Sanitary hygiene is carefully studied at Bournville, and the Works doctors are expected to critically deal with this in all its aspects. The various committees also supervise these matters, and the workers themselves are encouraged to make suggestions for improvement.

The Provision of Dining-rooms.—Another matter of vital importance to the health and refinement of the workers, is the provision of

opportunities for getting wholesome and comfortable meals. The lady factory inspectors are continually insisting on the disadvantage to the health of those women and girl workers who are unable to get a nourishing midday meal, and in too many cases the employer has not realized the need of providing a clean dining-room where the meal can be eaten. Much ill-health among women and girls is undoubtedly due to careless habits of feeding. A dinner of tea and pastry, or tea, tinned meats, and pickles, is not the best preparation for the strain that modern industrial life places on the woman worker.

This need has been met by the Firm by the provision of dining-rooms. The girls' dining-room has an area of 12,600 square feet, with seating accommodation for 2000. A large and fully equipped kitchen is adjacent to it, and from the kitchen an average of 3570 meals are provided daily for the workpeople. There are also separate dining-rooms for the men, the clerks, and the forewomen. About 1500 girls are daily supplied over the counter with dinners, the serving of which is accomplished in about ten minutes; and food is procurable at cost price. Metal tokens from $\frac{1}{2}d.$ to 1s. are obtainable at the ticket office, or in the rooms from the

ticket-seller, who goes round the girls' departments every morning, but no money is taken at the kitchen. After dinner, the tables have to be cleared immediately the first warning has sounded, five minutes before returning to work, and all paper, orange peel, etc., must be put in the orderly-boxes. Food brought by the workpeople is warmed free of cost in the general kitchen, and must be handed in at the counter not later than 9 a.m., and no cooking is allowed in the workrooms. A large number of the employees who live in the neighbourhood go home to dinner, and where possible this is encouraged for the sake of the exercise and fresh air thus obtained, and also because of the desirability of fostering the family life. In addition to the above figures, more than 22,000 meals are served from the kitchen during the year in connection with social and other functions. The net cost of the dining arrangements to the Firm, omitting the capital cost of the building, is about £1000 a year.

The following is a copy of the dining-room tariff:—

Ham or Tongue	per plate	2½d.
Boiled Beef	" "	2½d.
Pork Pies	each &	3d. 5d.
Ham, Tongue, or Beef Sandwich . . .	each	2½d.
Hot Meat with two Vegetables . . .		4d. & 6d.
Hot Meat and Potato Pie		2d.
Sausages and Potato		2½d.

Bacon	per rasher	1d.
Eggs	each	1d.
Potatoes or Haricot Beans		$\frac{1}{2}$ d.
Potatoes and Haricot Beans		1d.
Potatoes and Cabbage		1d.
Bovril	per cup	1d.
Tinned Salmon		6 $\frac{1}{2}$ d.
Sardines		6 $\frac{1}{2}$ d.
Soup (half-pint) and Bread		1d.
Milk Pudding	per plate	1d.
Stewed Fruit (of all kinds in season) and Custard		1d.
Fruit or Jam Tart		1d.
Bread	per slice	$\frac{1}{2}$ d.
Bread and Butter	" "	1d.
Slice of Cake or Buns	each	$\frac{1}{2}$ d.
Tea or Coffee (three-quarter pint)		$\frac{1}{2}$ d.
Cocoa (half-pint)		$\frac{1}{2}$ d.
Milk	per glass	$\frac{1}{2}$ d.
Lemon water (half-pint)		$\frac{1}{2}$ d.
Aerated Waters	per bottle	1d.

All kinds of Nuts.

All kinds of Fruit in season, including Oranges, Lemons, Bananas, Figs, Prunes, Grapes, Raisins, Raspberries, Strawberries, Cherries, Plums, Peaches, Apricots, Apples, Pears, Gooseberries, Melons, Tomatoes, Currants, Dates.

Regularity of Employment.—The evil effects of irregularity of employment will be at once admitted. The demoralizing effect of irregular hours of employment, and the consequent irregularity of wage, tend to produce a shiftless and careless worker. This is especially true in trades where wages, even in times of full work, are below efficiency level. The recent poor law reports, both majority and minority, emphasize the seriousness of this problem. An

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endeavour is therefore made, by careful organization, to reduce overtime and short time to a minimum. Continuity of employment is the ideal aimed at, and dismissal owing to shortness of work is avoided. There is no dismissal by foremen or forewomen, and the rules under which the employees work are well known, each being given a copy on engagement. The absence of fines, too, ensures that the worker can always reckon on getting the wages earned. In this connection it may be of interest to give the following particulars of those employed at Bournville, and the table below shows the number of men, women, boys, and girls who were in the employ of Messrs. Cadbury Bros., Ltd., on the 31st December, 1911 :— .

Ages.	Men and Boys.	Women and Girls.	Total.
Under 14	1	6	7
14 and under 18 . . .	456	1142	1598
18 and over	2077	2290	4367
	<hr/> 2534	<hr/> 3438	<hr/> 5972
Employed away from Bournville in the Firm's service	201	9	210
	<hr/> 2735	<hr/> 3447	<hr/> 6182

At that date 147 of the men were over the age of 50, 16 between the ages of 60 and 65,

7 between the ages of 65 and 70, and one over 70 years of age.

Of the men, 289 (10·5 per cent. of the total of men and boys employed) have been in the Firm's service for more than 20 years, 36 have been employed in the Works from 30 to 35 years, 12 from 35 to 40 years, and 4 from 40 to 42 years.

Of the women, 135 (3·91 per cent. of the total of girls and women employed) have been with the Firm for more than 20 years, 13 from 30 to 35 years, 4 from 35 to 40 years, 3 from 41 to 42 years, and 1 for 47 years.

The rapid growth of the Firm tends, of course, to reduce percentage of long service employees, and the large majority of women leaving to be married tends also in this direction.

Men and Women Workers.—Another question that needs consideration is the employment of men and women side by side in the workroom, under circumstances that tend to deteriorate them both. Without wishing to over-emphasize this matter, it must be admitted that the relation of workers of different sexes and ages in a factory affords a very serious problem. When the youth of both sexes are indiscriminately mixed in factories under unsatisfactory conditions, there may be grave moral danger. If there is no worse result,

their conversation is in danger of having a demoralizing effect upon both sexes. A similar difficulty is recognized in the mixing of married men and women with single girls and young people, and this is one of the objections which some employers have to married women working in factories. The matter, however, can be largely met by careful organization. So far, in nearly the whole of the departments of the Works this difficulty has been overcome. There are separate entrances for men and women, and by careful planning of passage ways they do not use the same passages to and from the dining-rooms, dressing-rooms, etc. No one is allowed in any part of the factory away from his or her own work, without a satisfactory reason, and only those men who are carefully selected and wear badges are allowed in the girls' departments. With regard to the association of married women and girls in the same departments, for a great many years married women have not been employed at the Works, as it is felt that a woman cannot give proper care to the home and children if she is spending the greater part of her time in a factory, and investigations made in Birmingham¹

¹ See *Women's Work and Wages*, by E. Cadbury, M. C. Matheson, and G. Shann, M. A.

have proved the very bad effect of married women working in factories, both upon the husband and the children. A few married women, or widows in poor circumstances, who before marriage have been employees at the Works, are employed as cleaners for an hour or two each morning.

Personal Cleanliness.—In view of the nature of the Bournville products, it has always been recognized that personal cleanliness is absolutely essential. All male employees are expected to wear clean jackets or aprons, and all girls and women clean white overalls, when starting work each Monday. New girl employees are provided with a length of holland, free of cost, at the end of their first fortnight's work, and must be wearing a uniform at the end of the first month. When further uniforms are required the material is supplied at two-thirds of the cost price. Holland for overalls and aprons is supplied to the men and boys at cost price. Buttons, needles and cotton in case of emergency are supplied on application, and if the uniforms are out of repair the wearer is liable to be entered in the record book for untidiness.

Hands must be washed before beginning work, and employees whose hands and nails are not found to be in good condition when

inspected by the doctor, render themselves liable to be recorded. All employees are expected to be scrupulously clean.

Snow shoes, white canvas shoes for flour workers, muslin caps, tooth-brushes, mouth-washes, tooth-powders, sponges, loofahs, combs, and nail-brushes, may all be purchased at the Works, by the employees, at or below cost price.

Bath tickets are issued to all girls and women, giving a specified day and hour each week when they may make free use of the private hot baths; a towel and soap are provided for each, and they are encouraged to make use of this opportunity.

Separate warmed and dry dressing-rooms are provided for both men and girls respectively, for changing their outdoor clothing on arrival at work.

Thrift.—It has been thought advisable to encourage saving among the workers, notwithstanding the fact that there are ample provisions publicly made to promote thrift in the Post Office, Co-operative Societies, etc. A Savings Fund has therefore been in operation since 1897, when a gift in commemoration of Queen Victoria's Diamond Jubilee was put to the credit of each employee, and in fifteen years over £68,000 has been saved by the

	5th year ending June 1902.	6th year ending June 1903.	7th year ending June 1904.	8th year ending June 1905.	9th year ending June 1906.	10th year ending June 1907.	11th year ending June 1908.	12th year ending June 1909.	13th year ending June 1910.	14th year ending June 1911.
Deposits from indi- vidual employees	£ 2620	£ 3051	£ 3356	£ 3886	£ 4179	£ 4827	£ 5052	£ 5052	£ 5451	£ 6518
Deposits from vari- ous departmental funds, etc. . . .	35 61	327 100	422 118	509 147	293 143	347 158	220 163	138 153	115 172	131 200
Interest	2716	3478	3896	4542	4615	5332	5435	5348	5738	6849
Number of deposi- tors	840	887	912	979	1058	1267	1325	1436	1616	2072
Average deposits .	£ s. d. 3 2 4	£ s. d. 3 8 9	£ s. d. 3 13 7	£ s. d. 3 17 4	£ s. d. 3 19 0	£ s. d. 3 16 2	£ s. d. 3 16 3	£ s. d. 3 12 6	£ s. d. 3 7 5	£ s. d. 3 2 11
Number of new P.O. accounts opened	179	199	206	205	224	232	285	373	356	408
Per cent. of em- ployees transfer- ring cash to P.O. at end of year .	24·6	24·7	24·7	26·4	28·2	29·4	29·4	28·7	29·1	28·6

workpeople. A depositor receives five per cent. interest per annum on amounts not exceeding £20. Collectors are appointed in each department and attend once a week to receive deposits and pay out withdrawals. To encourage thrift, the interest is paid only on amounts transferred to the Post Office Savings Bank at the end of the year, and the Post Office kindly sends officials to the Works to conduct this annual transfer, which is carried out during work hours, with a minimum of inconvenience to every one. The Firm never holds the savings of depositors more than a year, feeling strongly that the employer should not hold the employees' permanent savings. Depositors once having placed their savings in the Post Office Savings Bank, there is every inducement to keep them there, and it is a convenient arrangement in view of the accessibility for deposit in or withdrawal from any Post Office. The advantages of this arrangement over merely paying out deposits as in a coal or goose club, or other dividing society, are very great in leading to a permanent habit of saving.

The tabulated results for the past ten years appear on p. 257.

Factory as Social Centre.—The question is sometimes raised as to how far it is legitimate

and desirable to make a factory the centre of the social life of the workers, as Bournville Works is to a large measure for the people employed there. This problem has been raised in a practical form in America, where, in the case of employers who are concerned for the betterment of their workpeople, the present tendency seems to be to confine their efforts to providing good and efficient working conditions without in any way attempting to cater for the life of the workers outside working hours. It is said that this opinion has been arrived at partly because of the failure of the other policy and partly because of the fact that a man ought to be quite free in every way to order his private time as he may think fit. To this problem it seems difficult to give a general answer; probably no answer to meet all cases can be given. A factory situated in the centre of a large town would, by the force of circumstances, be unable to make itself a centre of social life, as the workers would probably separate too far afield to their homes, and would also be in close touch with various educational and social facilities. But in the case of a factory that is in a village, or on the outskirts of a large town, the circumstances seem to be somewhat different. In such places, as a rule, there is

very little opportunity for social recreation, and since a considerable part, if not the majority, of the community are dependent for their livelihood directly or indirectly on the large Works situated in their midst, it seems natural that their social life should focus round this centre. And providing that no coercive attitude is assumed by the employer, and that institutions are allowed to develop naturally to meet the needs explicitly expressed by the workers, and the workers themselves have to contribute to the cost of the maintenance, and control the management, little, if any, objection can be raised. In fact, if the proper spirit animates such activities, it will be found that the dynamic impulse generated will drive a large number of workers into outside social institutions, sometimes far afield, where they will act as a stimulating force. The efforts of the Bournville Social Service League are an instance of this, and it is a well-known fact that employees at Bournville Works exercise a keen influence in the trade union, political, and educational movements of Birmingham and district. On the other hand, in certain lines, because the facilities necessary for the conduct of the institutions are secured in a more efficient and economical way at the Works, and the

people employed there form so considerable a part of the population of the district, it is difficult from the ranks of those employed elsewhere to get sufficient members to keep outside institutions going; for example, attempts have been made in Bournville village and district to run a photographic society, but after a while it had to be given up for want of sufficient members, there being a flourishing society within the Works. The same thing has been realized in the efforts to institute gymnasiums for the young people in the district, such a large proportion of the younger people being absorbed in the Works gymnasium that there were not sufficient enthusiasts outside to keep such a club going. It is, however, always an open question as to how far, supposing Bournville Works with its social institutions were not there at all, the outside institutions would have been any more successful.

CHAPTER IX

CONCLUSIONS

THE writer has attempted in the preceding pages to set out the principles and facts of the Bournville Works business organization; and has made little or no attempt to appraise the value of the results. But there are a few general considerations arising out of such an organization and its effects that may be indicated.

Welfare Work in Factories.—It will have been noted that there is no mention of welfare work as such, or of social secretaries, yet it may be claimed that the organization of the Firm embodies the principles that must be at the root of all successful welfare work. In the first place, the aim is to develop the social sympathies and moral character of the employees, as well as their intelligence and initiative. It is also fully appreciated that this can be attained only so long as the conditions of work and wages offer facilities for the development of a well-balanced and healthy physical condition.

Again, it is always taken for granted that the wages, hours, sanitation, etc., should be equal to the highest accepted standard before other provisions are made for the workers. Clubs and classes, savings funds, libraries, etc., do not compensate the worker for low wages, long hours, and unsatisfactory conditions.

Moreover, welfare work does not consist merely in the various means and organizations by which it is carried out, but its success or failure entirely depends upon the spirit in which it is worked. If the employer and those engaged in welfare work feel it not only a pleasure, but a duty that they owe to their workers, and that this duty means that the employer must do the best in his power to promote the well-being of every worker, no matter what his position may be, then welfare work will probably be successful. But if welfare institutions are carried on merely for the purpose of advertising, or because the employer wishes to be equal to other employers in the equipment of his factory, and if they are carried on without sympathy or insight into the needs and feelings of the worker, then the employer will probably complain of the ingratitude of those whom his schemes are supposed to benefit, and his schemes will be mechanical and lifeless and evoke no true

response from those for whom they are designed. Successful welfare work in a factory does not depend upon expensive equipment or vast organization, but the smallest factory and humblest organization, if worked in the right spirit, will show good results on the character and well-being of the workers. Welfare work must not be regarded as something outside the general organization of the factory, but as a vital part of factory organization, and it should be shared by all as far as possible, including directors, heads of departments, foremen and forewomen, and the mass of the employees, and should not be left entirely to those who are specially set apart for this work. The opposite point of view is that welfare work is something apart from factory organization, and should be carried out by those whose special duty it is; but in the experience of the writer it is clearly shown that the theory of its being a part of the organization, is the one most likely to yield the best results and avoid friction.

Factory Legislation.—Another important point is the relation of the factory organization to factory legislation. The law has protected women and young persons to a large extent, and in the industrial world they have long held a distinct position compared with men, in regard

to hours of work, sanitary conditions, and other matters than wages. In 1802 the first Factory Act in England was passed. This Act dealt with the employment of children only, but later (1825) young persons up to the age of 16 were included in the provisions of the Act, and their employment was limited to twelve hours a day. All persons under the age of 18 came under the restrictions of the Act of 1831, and no girls under 21 were permitted to work at night. Up to the date of this Act, women over the age of 18 might work any number of hours in the daytime, and those over the age of 21 were subject to no legal interference in any way. As a result of these Acts, a further Act was passed in 1844 limiting the hours of all women in textile factories; and by 1853 the "normal" day was fixed, limiting the hours for women and children to ten-and-a-half a day, and enforcing that these hours should be between fixed times. The earlier Acts had been difficult to enforce, but this later provision simplified the working of the law, and made evasion more difficult. A series of Acts with many other restrictions followed, applying the existing legislation to practically every process of manufacture carried on for trade purposes; and in 1901 the legislation concerning factories and workshops was

consolidated in the Factories and Workshops Act of that year, by which particulars of the rate of wages payable was required to be furnished to each worker, in certain scheduled trades; the prohibition of child labour under the age of 12 became law; the inspection of workshops was made compulsory upon local authorities, and other powers were also given to local authorities regarding out-workers, sanitation, etc.; night-work for women was abolished in all trades; overtime was restricted, and the legal hours were reduced to ten per day, and fifty-five-and-a-half per week.

In the Acts of 1891 and 1895 came the first steps towards control of sweated out-work and prevention of unfairness in calculating and paying piece-work wages; and now, under the Trades Boards Act, 1909, wages in certain trades are regulated by law.

Factory legislation, however, of necessity can embody only to a limited degree the demand of the national conscience and experience. It can fix only a minimum standard. Such legislation is defensive, and aims to protect the workers from positive physical injury and overstrain, and, in a limited degree, from under-payment. As yet many well-known and serious risks are allowed to remain, to menace the life

and health of the workers, and in respect to medical tests and standards of their physical welfare, there is just sufficient provided by the law to show how utterly inadequate these protective provisions are in most cases.

But it is not the intention to criticize in detail the general standards of industrial conditions. The above facts are pointed out to show the wide field of experiment open to scientific and enlightened manufacturers, so that the improvement of the factory organization may not be just an end in itself, but a means of educating the community, and of proving the practicability, and economic necessity, of further advance beyond the existing law.

For example, the reader is reminded that in the Firm's experience, as a result of definite experiment, it is felt that the hours of the women and girls should not exceed forty-eight per week.

In the chapter on provisions for health and safety, it is shown how far the Firm considers it practicable and economic to advance beyond the demand of the law in the provision of medical assistance, and protection against fire and accident. The financial interests of the employers themselves demand that much more should be done in this direction than is usually carried out by the majority of industrial concerns.

In the matter of the compulsory education of the younger employees, as well as in voluntary effort, the Firm has assumed a responsibility, which, up to the present, the community has itself refused to undertake. But the economic results have justified the trouble and expense, not to mention the moral obligation which the Firm felt it had to its younger employees. In this connection, however, it must be pointed out that as soon as the Firm could induce the local education authority to undertake any of this responsibility, the work was at once transferred to the public authority, with a view to facilities being provided for the whole of the community. At the same time there is much of the organization of educational activity which business organizations can and must carry out for some time to come. The employer occupies an unique position in the power he has to induce his employees to pursue their education. And if it is objected that the employer has no right to interfere in the activity of his employee beyond the hours of work, it can be answered that, as far as education is concerned, there is no hardship imposed upon the young girls and boys, who otherwise might not be making the most of their opportunities. Assuming, for the sake of argument, that the

worker is to some extent at a disadvantage with his employer in this matter, yet the hope of the future for the worker lies in education. Knowledge is power. The class that has education and knowledge is the class that in the long run must rule, and therefore even if there is an element of coercion and restraint in the compulsory part of the education scheme, yet this very training itself will make the workers win such a position that coercion will be unnecessary, if not impossible.

Trade Unionism.—Another practical difficulty that has arisen is the relation of the employees of the Firm to trade unions. The members of the working classes are probably no better and no worse than those of any other class. Membership of a trade union involves not only a sense of fellowship and trade solidarity, but also a distinct element of individual self-interest. The average man needs to have a distinct idea of the return he is to get for his trade union contribution, before he is prepared to pay it, in spite of the fact that in some trades and districts long use and necessity has made membership of a trade union become almost habitual. Thus it came about that the employees of the Firm, with the wages well above the highest standard in the district, with

sick pay assured, with free medical advice when ill, and a pension when the time came to take a well-earned rest, felt little need of the membership of a trade union. And this in spite of the fact that it is well known that the directors looked with favour on trade union activity, and always recognized the trade unions, and that some members of the firm had presided in the district at organizing meetings held by trade unions.

But in recent years a distinct improvement has taken place in this respect. The better education of the employees is beginning to have its effect. There are now in the Works strong branches of various unions, and the membership is increasing steadily. This sign of awakening industrial consciousness is found also amongst the girls, and a branch of the National Federation of Women Workers has been established. The recent Trades Boards Act, regulating as it does the wages in the Card Box Trade, has had a distinct influence in this direction.

An interesting proof of this developing social sympathy on the part of the girl employees is seen in the formation of the society called the Social Service League.¹

¹ See p. 233.

This society has paid nearly the whole salary of a trade union organizer, and also carried out much social and educational work in other directions.

Another point to keep in mind in this connection is, that the wages and conditions of the Firm allow the employees to have a high standard of comfort and education. But Bournville Works does not absorb all the members of the families of its employees, and thus there is a constant number of young men and women passing into the industrial field, whose standard of life and education is sure to create a healthy discontent with a lower standard of work and wages. And this enlightened discontent is the soil in which trade unionism will flourish.

In conclusion, it may again be stated, even at some risk of reiteration, that the schemes of the Firm, and the conclusions of the writer, are placed before the public in no dogmatic spirit, but merely as a statement of the theoretical and practical development resulting from the logic of events. Any wages system must always contain an element of compulsion and driving, and although a mutual understanding on the part of the employer and employee may lead to smooth working and the best economic interest of each obtainable under the

system, yet it can never be said that the interests of employer and employed are absolutely identical. But it is this very fact that makes it all the more imperative that employers should recognize their duties as well as their rights. At the present time the clash of economic interests is becoming more keen and insistent, and there is little need to insist on the danger to the community if the industrial problems are to be settled in a spirit of class antagonism and warfare. Although in the future there may be some wide and far-reaching changes in the system of controlling industry, yet for a long time to come, individual employers will have a large part to play in the lives and well-being of their workpeople; and that is why the writer feels that this account of the Bournville experiments in industrial organization may be of use as a contribution to the settlement of such industrial problems.

APPENDIX

THE BOURNVILLE VILLAGE TRUST

THE Bournville Estate, undulating and well-wooded, is situated in the north-east of Worcestershire, four miles south-west of the city of Birmingham, in which city it was incorporated in 1911.

Mr. George Cadbury, one of the original partners in the firm of Cadbury Brothers, has come into direct contact with the housing problem, both as an employer of labour and as a teacher for 52 years in an Adult School, a class for men held on Sunday mornings in a working-class district of Birmingham. As a contribution towards the solution of this problem, he purchased the estate adjoining the Works, now known as the Bournville Estate, upon a portion of which Bournville Village is built.

In 1900 he transferred this estate to a Trust, which should hold and administer it in accordance with the conditions embodied in the Deed of Foundation. The objects of the founder are stated as follows :—

“The founder is desirous of alleviating the evils which arise from the insanitary and insufficient accommodation supplied to large numbers of the working classes, and of securing to workers in factories some of the advantages of outdoor village life, with opportunities for the natural and healthful occupation of cultivating the soil.”

* * * * *

“The object is declared to be the amelioration of the condition of the working class and labouring population in and around Birmingham, and elsewhere in Great Britain, by the provision of improved dwellings, with gardens and open spaces to be enjoyed therewith.”

The income from rents and every other source, is received and administered by the trustees. The Trust Deed enacts that after making full provision for repairs and maintenance, the surplus shall be employed in laying out the estate, in building houses, and in purchasing other estates either in the neighbourhood of Birmingham or elsewhere, to be developed in the same way as Bournville, or by other means to promote the better housing of the people. The gift was an absolute one, the founder surrendering all private interest in the estate both as regards capital and revenue; and since the formation of the Trust Deed he has added additional gifts of land and capital. An anonymous gift of £6000 was also received by the trustees in 1905. The present area of the estate is 609 acres, and the total value is estimated at £263,000.

The scheme provides that each house must have a good-sized garden; that no building shall occupy more than about one-quarter of the area of land on which it is built; that the roads shall be wide and tree-bordered, and that at least one-tenth of the land, in addition to the roads and gardens, shall be reserved for parks and recreation grounds. Among the provisions of the Trust Deed it was suggested that the rents of houses that might be built should "be fixed on such basis as to make them accessible to persons of the labouring classes . . . without, however, placing them in the position of being recipients of a bounty." Any part of the property may be used for shops or factories, subject to restrictions relating to the sale of alcoholic drinks, but the founder suggests that "no such factories shall occupy in area more than one-fifteenth part of the total area of the estate on which they may be built." The clause in the Trust Deed relating to the sale of intoxicating liquor, provides that no house or building shall be used for such sale, except with the unanimous consent in writing of all the trustees, and that such consent may have any condition as to hours or any other matters attached thereto as the trustees may determine; and further, that all the net profits arising from the sale of

intoxicating liquor, shall be devoted to securing for the village community recreation and counter-attractions to the liquor trade as ordinarily conducted.

Another clause may be quoted :—"The administration of the Trust shall be wholly unsectarian and non-political, and there shall always be a rigid exclusion of all influences calculated, or tending, to impart to it a character sectarian as regards religion or belief, or exclusive as regards politics, and it will be a violation of the intention of the founder, if participation in its benefits should be excluded on the ground of religious belief or political bias."

The village of Bournville was rapidly brought into existence on the principles laid down by the Trust Deed, nearly two hundred houses being built in one year. Before the formation of the Trust, the intention had been to sell the sites and cottages outright ; but this was found to be open to difficulties, as the motives and wishes which prompted the scheme would be difficult to ensure, if a class of small freeholders were thus created. It was then decided to sell the houses and land on leases of 999 years, charging ground rent, and inserting covenants in the leases to secure the accomplishment of the purposes of the founder. Assistance was offered to intending

purchasers, by the advancement of money, on favourable terms, and by granting mortgages on the property. Three per cent. was charged to those who paid less than half the cost of the house, and to those who paid half or more the rate was two-and-a-half per cent., and about 140 cottages were sold in this way. But this arrangement was also found to be open to some of the objections that applied to the first plan, and it was therefore ultimately discontinued. In order, however, to meet the many requests for building sites, leases for 99 years are still obtainable under the conditions before stated.

There are about seven houses to the gross acre, the majority of them having a sitting-room, kitchen and scullery, three bedrooms, and the usual conveniences. Some have one large living-room instead of two smaller ones, and a few have only two bedrooms. There are also some houses of a larger type; and there have recently been built two quadrangles of small one-storey bungalows suitable for single women, consisting of living-room, bedroom, and scullery provided with bath, and these have met a great need. Many of the houses have bathrooms, with hot and cold water, and where there is no separate bathroom, the bath is fixed in the kitchen or scullery, either at the

side, when it is fitted with a lid so as to form a table, or arranged to work on a hinge and shut up into a cabinet. This latter arrangement has so far proved decidedly the most satisfactory.

The average plot of ground allowed to each house is about 500 square yards. The gardens are laid out by the gardening staff when the houses are built, and fruit trees (pear, apple, plum, and bush fruits) are planted. The tenant of a new cottage, therefore, finds his garden already prepared before he enters, instead of having to begin by breaking up uncultivated ground. The fruit trees form a pleasant screen between the houses. A trained gardener, with a staff of men, is in charge of the gardening department, and information and advice are given to tenants when they request them. After the gardens have been laid out in the first place, each tenant is responsible for the cultivation of his own; keen interest is taken in them, and they are cultivated with great success. Through the Bournville Village Council,¹ a gardening association has been formed for the purpose of competitions and the regular inspection of gardens. Gardening tools (lawn-mowers, etc.) are let on hire by this Council, and arrangements made for the co-operative

¹ See p. 283.

purchase of plants, shrubs, and bulbs in large quantities. A loan library of gardening books has also been formed. There are two gardening classes for boys and young men,¹ and the pupils usually attain a high place in the County competitions. The annual village flower show gives ample evidence of the success of the gardens and allotments. In order to ascertain the value of the garden products, 25 gardens were placed under observation, and tests were made, the result showing an average net yield of 2s. per week for each garden through the year. This gives a return of £128 16s. 0½d. for the 10,580 square yards represented by the 25 gardens, which is at the rate of £58 18s. 5d. an acre per annum. Where possible, vacant land is let as allotments, which are open to others besides those living on the estate, and these are very successfully cultivated.

In addition to the gardens, open spaces have been preserved to the extent of about 16 acres of the 118 acres so far laid out for building purposes. These open spaces include a village green, a small wood, a park, and two playgrounds for children (in addition to the school playgrounds).

The public buildings in the village are Ruskin

¹ See pp. 41-42.

Hall, the Village Meeting House (Friends),-and the Elementary Schools. Both the meeting house and the schools are the gift of Mr. and Mrs. George Cadbury. Ruskin Hall is the centre for the intellectual and social life of the village, and is used in winter for classes in Arts and Crafts, under the City of Birmingham Education Committee. The Trust has also given land as a site for a church and vicarage which are yet to be built. The Mixed School accommodates 540 children, and the Infants' School 250. The school buildings embody the most recent improvements and rank with the best in the country. The tower of the Mixed School contains a clock which chimes every quarter. There is also a carillon of 22 bells, upon which various tunes and national airs are played, by mechanism, four times a day; the bells can also be rung from a keyboard.

The village roads are 42 feet wide and are planted with trees. The houses are set back at least 20 feet from the roads, thus leaving a space of 82 feet from house front to house front. Care has been taken in laying out the village that it shall be picturesque as well as healthy. Where possible the old trees have been preserved, and a large number of young trees have also been planted. The cottages have been planned to

allow a free circulation of air around them, and to secure the greatest possible amount of sunshine. A great variety of treatment has been introduced into the architecture, and the houses are compact, long, straggling extensions at the back having been avoided.

There are now 731 houses in the village :—

31	at	4s. 6d.	per week or under, rates extra.
138	over	4s. 6d. and up to 5s. 3d.	per week, rates extra.
132	„	5s. 3d.	„ „ 6s. „ „ „ „
85	„	6s.	„ „ 7s. „ „ „ „
68	„	7s.	„ „ 8s. „ „ „ „
109	„	8s.	(including shops).
168	sold and occupied by owners.		

Immediately adjoining the village, just outside the Trust property, there are 38 houses built by the late Mr. Richard Cadbury, belonging to the “Alms House Trust,” and 22 houses belonging to the firm of Cadbury Brothers, Ltd., which are always included under the name of Bournville. Taking all together there are 791 houses and a population of 4300. The estate is served by Birmingham with gas, water, and drainage, the rates being about 7s. in the £ exclusive of water rate. There is a great demand for houses, and tenants seldom leave the village unless they are removing from the district. New houses are generally let long before they are completed.

The Trustees appreciate the fact that, if the benefits of the scheme are to be extended, it must be conducted on sound commercial principles, in order to show that such an undertaking can be a financial success, and not merely an act of philanthropy, and although the cost of building the class of houses erected at Bournville is in excess of the cost of building long, unbroken rows, and the provision of gardens makes a slight additional charge for ground rent (which is more than met by produce of gardens), yet they have been able to fix rents so that a net return of nearly 4 per cent. can be obtained on the cost of the site and building, after all outgoings have been provided for. The scheme has therefore proved itself to be financially practicable.

The Trust is under the supervision of the Charity Commissioners.

The whole scheme is a contribution towards solving the housing problem, especially as it exists in large cities. For this reason the village is not reserved for, nor primarily intended for, the sole benefit of the workpeople at Bournville Works. Less than half the householders are employed at the Factory. A private census compiled some years ago showed the percentages of Bournville householders working in the districts named, as follows:—

BOURNVILLE VILLAGE TRUST 283

Bournville Works	41·2 per cent.
King's Norton (Manufacturing suburb of } Birmingham) }	4·7 " "
Selly Oak, within one mile of Bournville . .	13·9 " "
Birmingham	40·2 " "

The same census supplies the following particulars respecting the occupations of the Bournville householders :—

Employed at indoor work at factories . . .	50·7 per cent.
Clerks, Travellers, etc.	13·3 " "
Mechanics, Carpenters, Bricklayers, and } various occupations not admitting of exact } classification }	36·0 " "

A Village Council is elected by ballot of the tenants. The members give their services voluntarily, and a certain number retire by rotation each year. The Council has the management of the children's playgrounds and the park; it also nominates two of the School Managers and two members of the Ruskin Hall Committee. It organizes the village flower show, rose show, and chrysanthemum show, and also the Annual Fête for the village children, and generally looks after the interests of the inhabitants.

The figures on p. 284 show the vital statistics of the village compared with England and Wales and the urban district of King's Norton and Northfield, in which the village was situated until absorbed by Birmingham.

284 INDUSTRIAL ORGANIZATION

Average for five years ending 1910—Death rate per 1000.

Bournville, 5·7; Urban District, 10·5; England and Wales, 14·6.

Infant Mortality per 1000 Births.

Bournville, 62·4; Urban District, 87·6; England and Wales, 117·4.

The following shows a comparison of the height and weight of boys and girls of Bournville with that of the Floodgate Street area, a district in one of the poorest parts of Birmingham:—

—	Age 6 years.	Age 8 years.	Age 10 years.	Age 12 years.
	lbs.	lbs.	lbs.	lbs.
WEIGHT— <i>Boys</i> , Bournville . .	45·0	52·9	61·6	71·8
„ „ Floodgate Street	39·0	47·8	56·1	63·2
„ <i>Girls</i> , Bournville . .	43·5	50·3	62·1	74·7
„ „ Floodgate Street	39·4	45·6	53·9	65·7
	inches.	inches.	inches.	inches.
HEIGHT— <i>Boys</i> , Bournville . .	44·1	48·3	51·9	54·8
„ „ Floodgate Street	41·9	46·2	49·6	52·3
„ <i>Girls</i> , Bournville . .	44·2	48·6	52·1	56·0
„ „ Floodgate Street	41·7	44·8	48·1	53·1

THE ALMSHOUSES.

The account of Bournville would be incomplete without a reference to the Alms-houses, which were founded in 1898 by the late Mr. Richard Cadbury. These are 33 in number, and are built in the form of a quadrangle.

Each house has a living-room, bedroom and scullery, all on the ground floor. They are furnished, and the occupants are supplied free with coal, water, and gas; also with medical attendance. Old employees of Messrs. Cadbury Brothers, Ltd., have the preference for admission, but the houses are not reserved exclusively for them. An Endowment Fund for the maintenance of the Almshouses is provided by the rents of 38 dwelling-houses near by, built for the purpose, and the whole is administered by a Board of Trustees.

THE BOURNVILLE TENANTS, LIMITED.

The Bournville Village Trust has leased to the Bournville Tenants Limited, which is a co-partnership building society registered under the Friendly Societies Act, about eighteen acres of land on the south-western boundary of the estate. The Bournville Tenants Limited was registered on August 16, 1906, for the purpose of building, owning, and managing houses on the co-partnership principle. The ground rent charged to the Society is £11 10s. 0d. per acre per annum, and the lease is for 99 years, renewable every 99 years at the option of the society. With this 18 acres the Trust has

provided 2 acres rent free, for a permanent open space and recreation ground. The estate stands high, and is laid out so as to enable each tenant to have a share in the extensive views over the well-wooded and beautiful country which surrounds it. The conditions on which the land is held are the same as on Bournville Village, but this gives the society liberty to erect both small and large cottages. The weekly rentals of the houses, which have large gardens, are from 4s. 6d. to 10s., rates being extra. There are at the present time 136 houses, the majority of which stand around the large open space used as the recreation ground, upon which the backs of the houses look. Each cottage stands in 600 yards of ground, and is set back ten yards from the road, leaving a good garden plot or lawn in front. The general accommodation provides a sitting-room, a large kitchen, three bedrooms, a bath with hot and cold water, etc., and the usual outhouses. The gardens are well cultivated by the tenants. The district is within easy reach of Birmingham by either train or tram service. Under the scheme any increase in the value of the property is secured to the tenants in the way of profit or lower rents. Mr. George Cadbury (the founder of the Bournville

Village Trust) has built a hall to meet the social requirements of the village. Sports and games are organized by a committee elected by the residents, and provision is also made for the recreation of the children. Social evenings and meetings of an educational character are arranged during the winter months, and are well attended.

The capital is raised in shares of £10 each, upon which a maximum of 5 per cent. interest is payable half-yearly. Every tenant must acquire five shares, but these may be acquired by a minimum payment of £3 and the balance by monthly instalments. Loan stock is also issued bearing 4 per cent. interest.

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